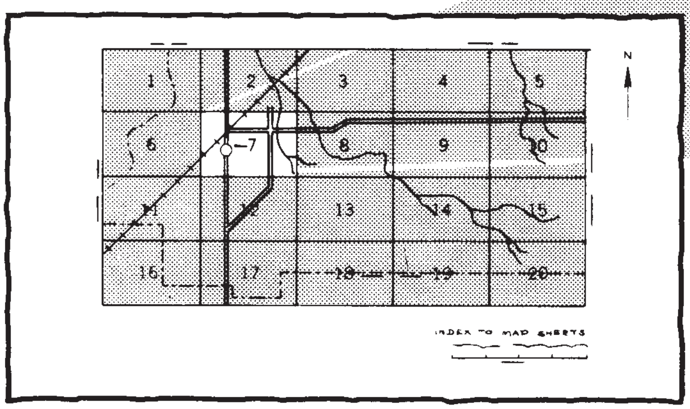
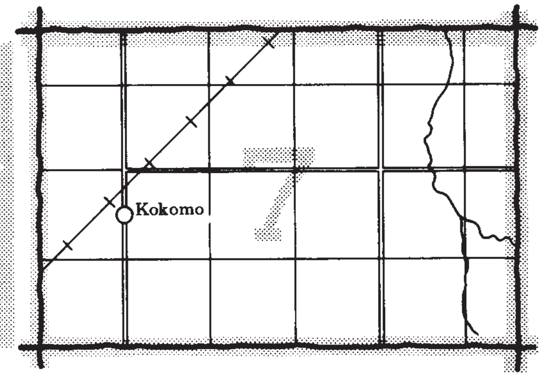
SOIL SURVEY OF
LOWNDES COUNTY, MISSISSIPPI

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Mississippi Agricultural and Forestry Experiment Station

HOW TO USE

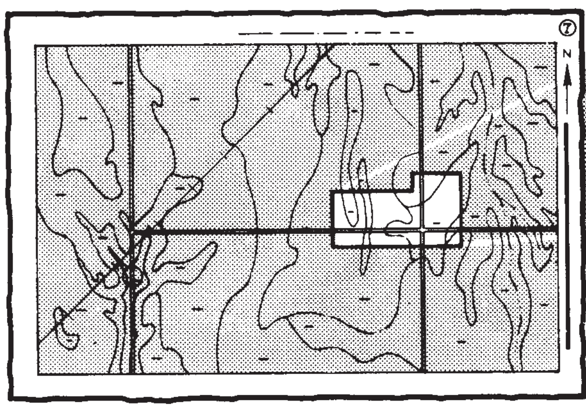
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

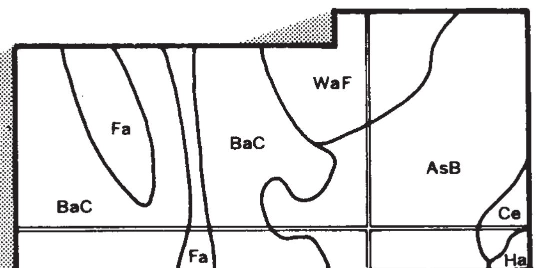




2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.





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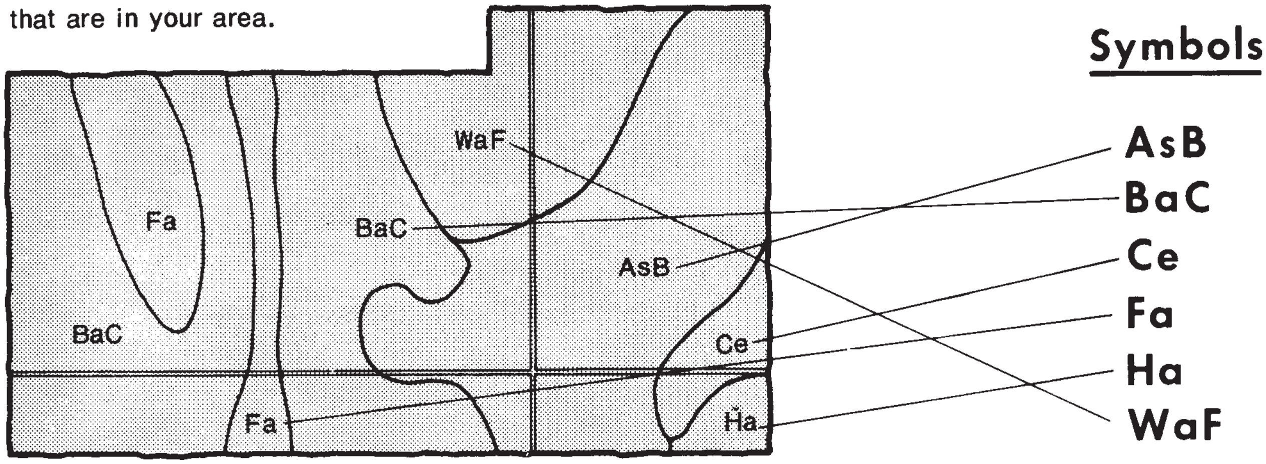
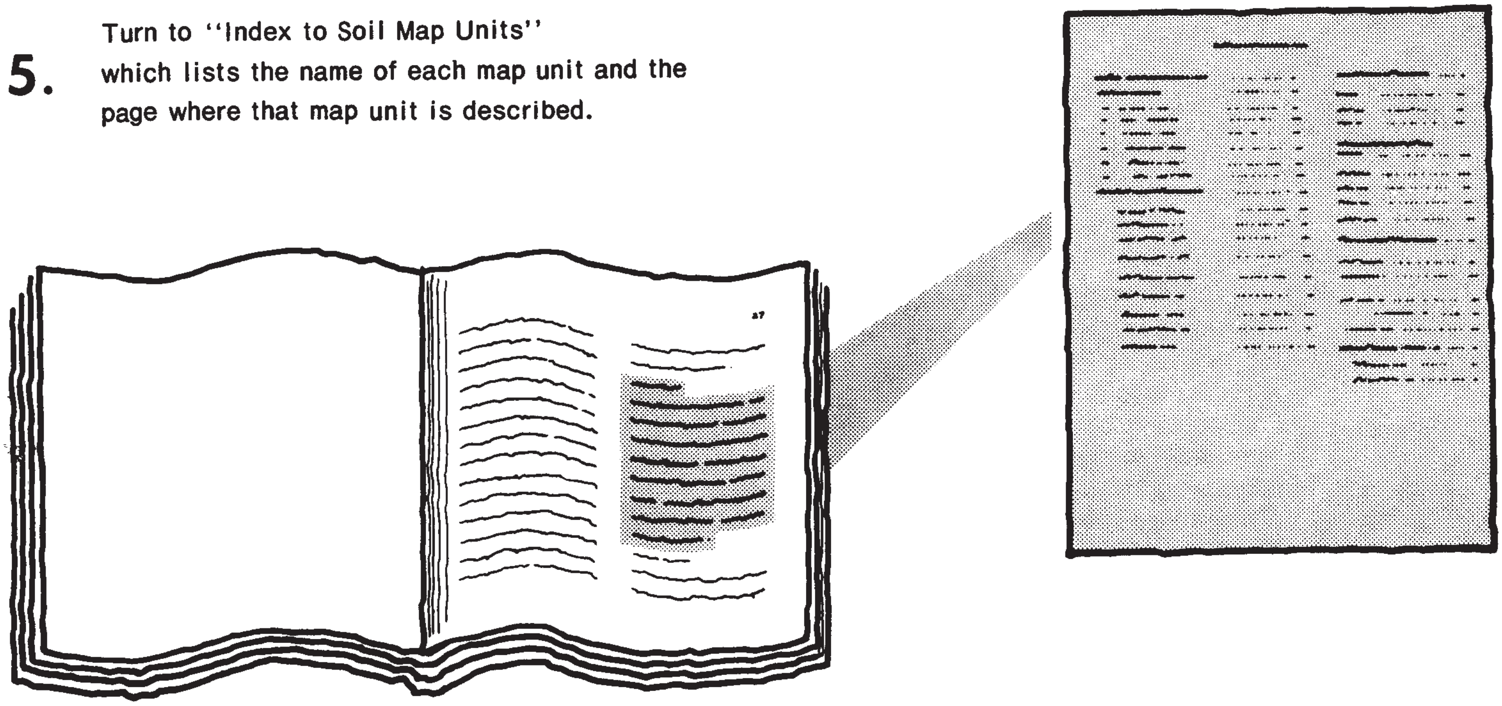
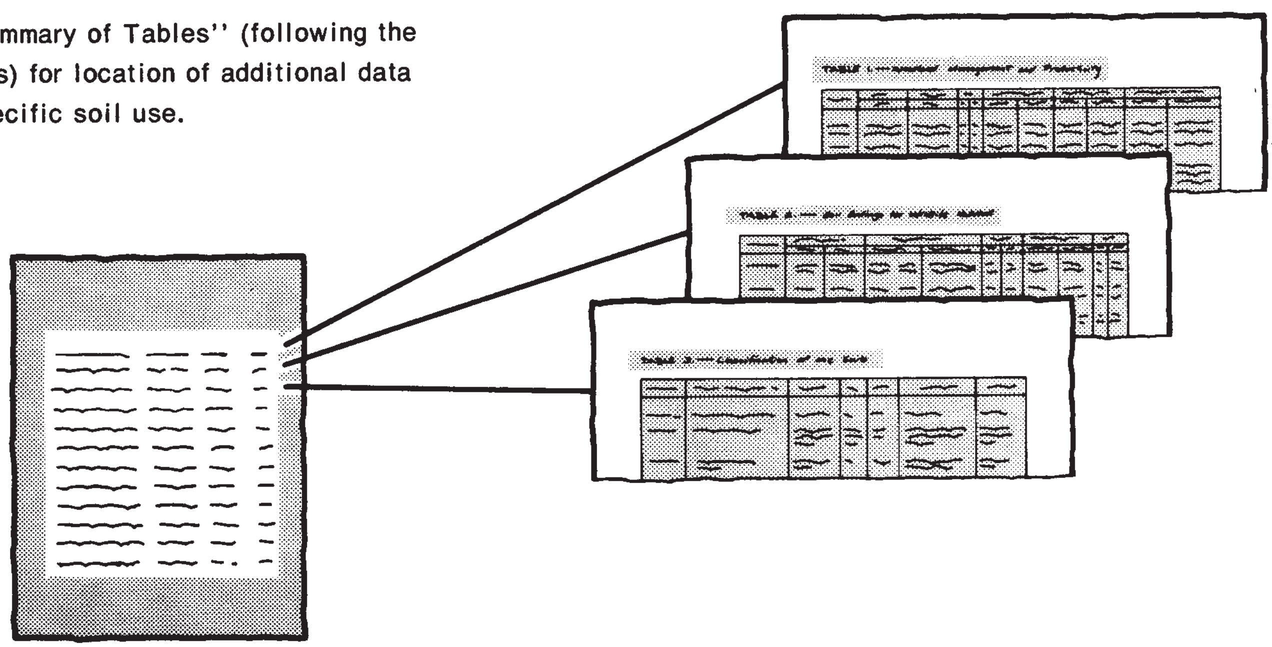


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1968-76. Soil names and descriptions were approved in 1976. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1976. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Lowndes County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Impoundments such as this one on Valden silty clay, 2 to 5 percent slopes, eroded, are suitable for use by wildlife.

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Foreword

The Soil Survey of Lowndes County, Mississippi contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Chester F. Bellard

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State Conservationist
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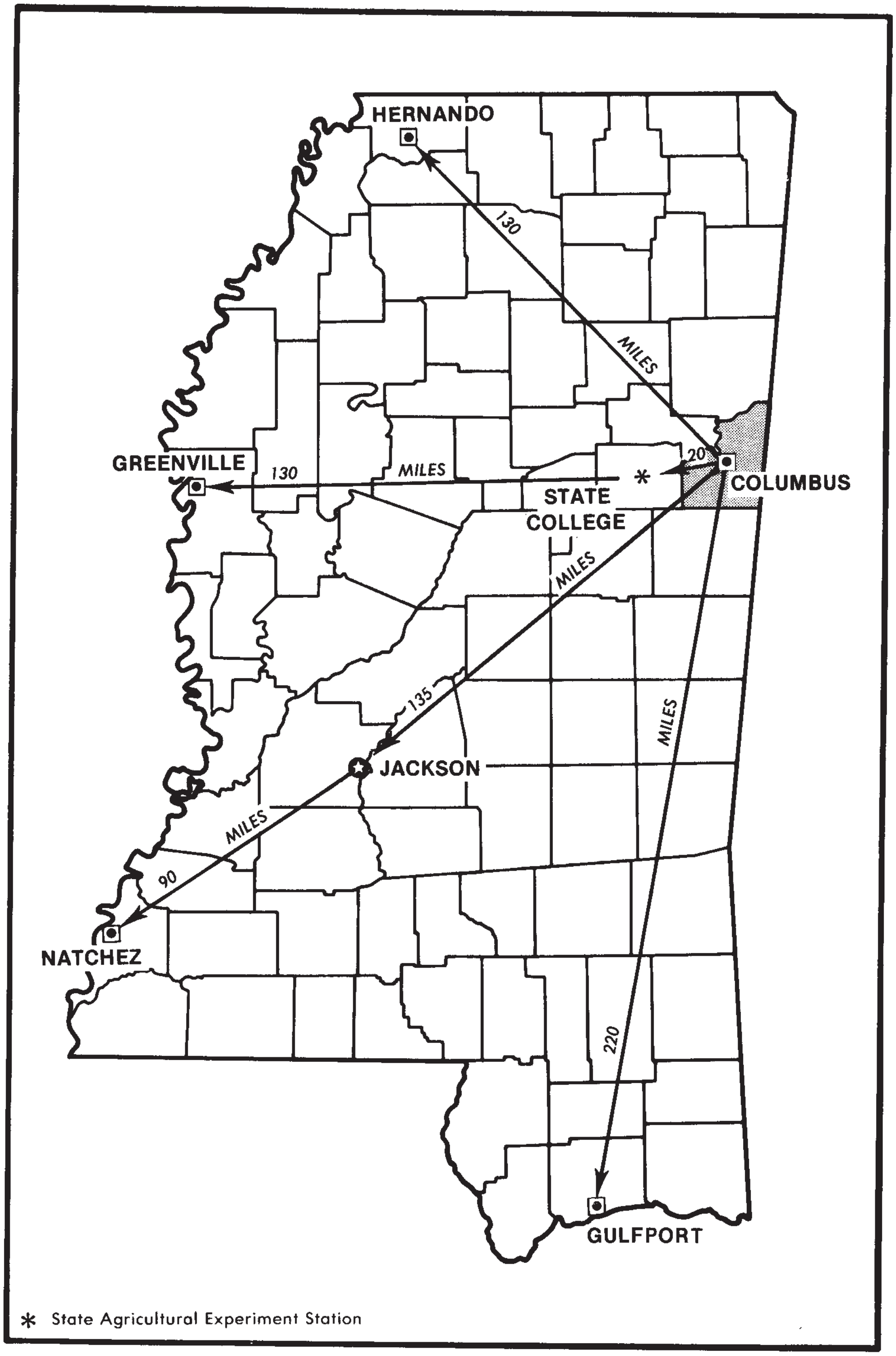

Location of Lowndes County in Mississippi.

SOIL SURVEY OF LOWNDES COUNTY, MISSISSIPPI

By Floyd V. Brent, Jr., Soil Conservation Service

Fieldwork by Floyd V. Brent, Jr., Roger W. Smith, and Thomas T. Kilpatrick

United States Department of Agriculture,
Soil Conservation Service,
in cooperation with the Mississippi Agricultural and Forestry Experiment Station

LOWNDES COUNTY is in east-central Mississippi (see map on facing page). Its total area is 325,120 acres, or 508 square miles. The population in 1970 was 49,700. Columbus, the county seat and principal town, had a population in 1970 of 26,000.

Lowndes County is bounded on the east by Alabama, on the north by Monroe and Clay Counties, on the west by Oktibbeha County, and on the south by Noxubee County. The county extends about 23 miles from east to west at its widest part and about 31 miles from north to south at its longest part.

General nature of the county

In the paragraphs that follow, the climate, settlement, farming, industry and transportation, and physiography and geology of Lowndes County are described.

Climate

Climate data in this section were specially prepared for the Soil Conservation Service by the National Climatic Center, Asheville, North Carolina.

Lowndes County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year; it peaks slightly in winter. Prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is usually adequate for most crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Columbus for the period 1951 to 1975. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 46 degrees F, and the average daily minimum temperature is 34 degrees. The lowest temperature on record, which occurred at Columbus on January 30, 1966, is -1 degree. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 92 degrees. The highest recorded temperature, which occurred on July 29, 1952, is 108 degrees.

Growing degree days, shown in table 1, are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 25 inches, or 45 percent, usually falls in the period April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 15.68 inches at Columbus on July 9, 1968. Thunderstorms occur on about 60 days each year, and most occur in summer.

Average seasonal snowfall is 2 inches. The greatest snow depth at any one time during the period of record was 14 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The percentage of possible sunshine is 65 in summer and 45 in winter. The prevailing wind is from the south. Average windspeed is highest, 8 miles per hour, in March.

Severe local storms, including tornadoes, strike occasionally in or near the county. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

Settlement

Lowndes County, organized in 1830, was named after William Lowndes, Congressman from and Governor of South Carolina. The county was formed from the Choctaw Session; it was part of Monroe County until it was organized as it is today in December 1833.

The city of Columbus, incorporated in 1821 and now the county seat, is on a high bluff overlooking the Tombigbee River. Lowndes County is the site of Columbus Air Force Base, about 9 miles north of Columbus, and of the first state-supported institution for women in the United States, Mississippi University for Women, which was founded in 1884.

Industry and transportation

Lowndes County has a diverse economy. Manufacturing is the most important part of that economy. Total earnings from manufacturing in Lowndes County in 1971 were more than five times those from farming and forestry (*4*).

The Tennessee-Tombigbee Waterway, currently under construction, is scheduled to be completed in 1986. A lock and a dam and reservoir will be in Lowndes County. The surface area of the reservoir is expected to be about 9,000 acres. The Waterway will allow barge traffic from Mobile to reach the county.

Lowndes County is crossed by federal, state, and county roads. The county also receives air, bus, and rail traffic.

Farming

Farming is of secondary importance to the economy of Lowndes County. Since 1945, the number of farms in the county has decreased but the average size of individual farms has more than doubled.

In recent years, the acreage in cotton and corn has decreased sharply and the acreage in soybeans has increased. Other crops grown in the county are oats, wheat, grain sorghum, and silage crops. Dairying, once a major source of farm income, has declined in importance while the raising of beef cattle has become more important.

Physiography and geology

Dr. Troy J. Laswell, Head, Geology and Geography Department, and Dr. Ernest E. Russell, Professor of geology and geography, Mississippi State University prepared this section.

Physiography.—The Tombigbee River roughly parallels the boundary between the two major physiographic units in Lowndes County: the Fall Line Hills (Tennessee-Tombigbee River Hills) and the Black Prairie Belt. Terraces associated with the Tombigbee River modify the Fall Line Hills on their western edge to form a physiographically distinct region.

The rugged, hilly topography so characteristic of the Fall Line Hills is developed only along the eastern edge of the county and in a small area north of Columbus at the confluence of the Tombigbee River and Luxapalila Creek. This area has been extensively modified by the Tombigbee River and its tributaries during several erosional cycles. The highest elevations, more than 440 feet above sea level, occur in the northeastern part of the county.

The Black Prairie Belt is typically developed west of the Tombigbee River. It consists for the most part of gently rolling hills of low relief. Elevations range from about 200 feet to more than 260 feet above sea level. In the extreme southwestern corner of the county, in Crawford and adjacent areas, the elevations of the Black Prairie Belt rise to slightly more than 340 feet. This increase in elevation reflects the nearness of younger, more resistant units that overlie the Black Prairie in adjacent areas of Noxubee and Oktibbeha Counties.

Geology.—Lowndes County is underlain by sediments of Cretaceous age. These sediments dip very gently toward the west at approximately 30 feet per mile. A veneer of fluvial deposits associated with the development of the Tombigbee River system conceals much of the Cretaceous outcrop, especially in the eastern part of the county. The sediments of Cretaceous age can be divided into four units: Tuscaloosa Formation, Eutaw-McShan Formations (undivided), Mooreville Formation, and Demopolis Formation (fig. 1).

The Tuscaloosa Formation crops out in the northeastern part of the county along the valley walls of the Buttahatchie River. Probably less than 100 feet of this formation is exposed. In Lowndes County, the Tuscaloosa Formation consists of varicolored sands, principally fine to medium grained, and of silty clays that are locally lignitic.

The Eutaw Formation includes the upper Tombigbee Sand member and a lower unnamed member. For purposes of discussion, the McShan Formation is included with the lower Eutaw. The lower Eutaw-McShan crops out in the valley walls beneath terrace deposits in a belt several miles wide and extending from the southeastern corner of the county near Nash Creek northward to the Buttahatchie River. Throughout most of this belt, the lower Eutaw-McShan is covered by younger deposits. The lower Eutaw-McShan stratigraphic interval consists predominantly of fine to very-fine, well-sorted, glauconitic, marine sands interbedded with thin, gray, montmorillonitic clays. Locally, the clay beds are several feet thick. The uppermost Tombigbee Sand member of the Eutaw Formation consists of gray, massive-bedded, very-fine, glauconitic marine sands with admixtures of silt and clay. The outcrop belt of the Tombigbee Sand member is immediately west of the lower Eutaw-McShan belt. In many areas, the western limit of the outcrop belt coincides with the west valley wall of the Tombigbee River. The weathering of glauconite in the Tombigbee Sand

member and in the lower Eutaw-McShan Formations produces the iron oxides and hydroxides that give rise to various shades of red, yellow, orange, and brown observed on weathered outcrops.

The Mooreville Formation crops out in a belt extending from the southeastern corner of the county northwestward to Tibbee Creek in a belt that is generally 3 to 4 miles wide. The formation consists of gray, massive-bedded marls and calcareous clays that weather to various shades of yellow-brown. The upper member of the Mooreville Formation consists of two or three thin beds of impure limestone. Boulders of limestone occur along the western edge of this outcrop.

The western part of Lowndes County south of Tibbee Creek is underlain by the Demopolis Formation, which consists of gray, massive-bedded marls and chalks. The marls closely resemble the underlying Mooreville Formation, and it is difficult to differentiate lithologically between the formations. The chalky horizons generally produce thinner weathering zones than do the marls.

The youngest deposits in Lowndes County are associated with the Tombigbee River system. In its westward migration, the river has produced a series of terrace deposits and present-day alluvium. The terrace deposits cap the highest elevations in the eastern edge of the county and step downward toward the present flood plain of the river. The terraces represent alluvial deposits of the Tombigbee River at an earlier stage, when the river occupied higher elevations than it does now. The terrace deposits consist of basal chert gravel and grade upward into flood-plain deposits of sandy and clayey silts. These have been mapped by geologists as lithic units but are given no formal names. The surfaces of the older (upper) terraces are highly dissected. The base of each terrace deposit is a relatively flat, easily mapped boundary that may cut across units of Cretaceous age. Classically, these terrace deposits have been correlated with interglacial stages, but their exact age is not known.

The Tombigbee River and its major tributaries have extensive flood plains. The alluvium in the flood plains consists of channel, point bar, backswamp, and associated deposits. The flood-plain deposits of the Tombigbee River and its eastern tributaries contain large amounts of gravel and sand and are lithologically different from those of the western tributaries, which are predominantly silt and clay.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a

unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated farm crops, woodland, urban uses,* and *recreation areas*. Cultivated farm crops are those grown extensively by farmers in the survey area. Woodland refers to land that is producing either trees native to the area or introduced species. Urban uses include residential, commercial, and industrial developments. Intensive recreation areas include campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic. Extensive recreation areas include those used for nature study and as wilderness.

Nearly level and gently sloping soils; on flood plains and terraces

Three map units are made up of nearly level and gently sloping soils that are subject to flooding. These soils are on wide flood plains and low stream terraces of the larger streams.

1. Leeper-Catalpa

Somewhat poorly drained and moderately well drained, clayey soils on flood plains

Areas of these nearly level soils are on wide flood plains in the western part of the county.

This unit occupies about 6 percent of the county. About 60 percent of the unit is Leeper soils, 25 percent is Catalpa soils, and 15 percent is soils of minor extent.

The somewhat poorly drained Leeper soils and the moderately well drained Catalpa soils occur throughout the area. Both soils have a clayey surface layer and a clayey subsoil. They shrink and crack during dry periods.

The minor soils in this unit are the moderately well drained Griffith soils in higher areas near the uplands and the poorly drained Tuscumbia soils in depressions.

This unit is used mainly for cultivated crops, but most of the frequently flooded areas are still wooded. These soils are flooded occasionally to frequently. This flooding causes slight to severe crop damage. Wetness, flooding, and high clay content are the main limitations of these soils for farming and for most other uses. Where adequately drained, these soils have good potential for cultivated farm crops and pasture plants. They have good potential for adapted hardwoods. Wetness, flooding, and high shrink-swell potential are such severe limitations and are so difficult to overcome that potential for residential and other urban uses is poor. Potential for development of wetland or openland wildlife habitat is good.

2. Jena-Mantachie

Well drained and somewhat poorly drained, loamy soils on flood plains

Areas of these nearly level soils are on flood plains along the Tombigbee and Buttahatchie Rivers and Luxapalila and Yellow Creeks. The topography consists of ridges and swells having relief of as much as 10 feet.

This unit occupies about 7 percent of the county. About 35 percent of the unit is Jena soils, 25 percent is Mantachie soils, and 40 percent is soils of minor extent.

The well drained Jena soils in most places are on the higher elevations and along stream channels. The somewhat poorly drained Mantachie soils are on lower elevations in most places and are away from the stream channels.

The minor soils in this unit are the poorly drained Kinston soils in depressions; in some areas, soils that are under water the year round; and, at higher elevations, soils that are similar to Jena soils but that have a heavier textured subsoil.

This unit is mainly wooded. The soils are subject to frequent flooding, which could cause severe crop damage. Wetness and flooding are the main limitations of these soils for farming and for most other uses. These soils have good potential for adapted hardwoods. Wetness and flooding are such severe limitations and are so difficult to overcome that potential for residential and other urban uses is poor. Potential for development of wetland wildlife habitat is good.

3. Cahaba-Prentiss-Guyton

Well drained, moderately well drained, and poorly drained, loamy soils on terraces

Areas of these nearly level and gently sloping soils are on terraces on both sides of the Tombigbee River.

This unit occupies about 12 percent of the county. About 34 percent of the unit is Cahaba soils, 23 percent is Prentiss soils, 18 percent is Guyton soils, and 25 percent is soils of minor extent.

The well drained Cahaba soils in some places are at slightly higher elevations than the moderately well drained Prentiss soils. In many areas the Prentiss soils occur between the higher Cahaba soils and the poorly drained Guyton soils in depressions. Cahaba and Guyton soils are subject to flooding for at least brief periods, and some of the soils in lower areas are subject to flooding more frequently and for longer periods.

The minor soils in this unit at slightly higher elevations are the well drained Latonia soils and soils that are similar to Latonia soils except that they have a lighter textured subsoil; in intermediate areas are the moderately well drained Annemaine and Columbus soils; and in low areas and depressions are the somewhat poorly drained Steens soils and the poorly drained Kinston soils.

About 60 percent of the acreage of this unit is wooded, and the rest is cultivated or in pasture. About half of Columbus Air Force Base is in this unit. Some areas of once cultivated soils have been planted to pine trees. Cahaba and Prentiss soils have good potential for cultivated crops; Guyton soils, however, have poor potential because of wetness and the high water table. Crops are seldom damaged by flooding on Cahaba soils because the flooding usually occurs during winter. These soils have good potential as woodland. They have poor potential for residential and commercial uses because of the possibility of flooding. Potential for development of wetland and openland wildlife habitat is good.

Nearly level to sloping soils; on terraces and uplands

Two map units in the county are made up of soils on broad stream terraces and uplands.

4. Prentiss-Rosella-Steens

Moderately well drained, poorly drained, and somewhat poorly drained, loamy soils on terraces

Areas of these nearly level and gently sloping soils are on terraces on the east side of the Tombigbee River.

This map unit occupies about 17 percent of the county. About 30 percent of the unit is Prentiss soils, 14 percent is Rosella soils, 14 percent is Steens soils, and 42 percent is soils of minor extent.

The moderately well drained Prentiss soils are at higher elevations than the poorly drained Rosella soils, which are in depressions and drainageways. In many areas the somewhat poorly drained Steens soils occur between Prentiss and Rosella soils. Rosella and Steens soils have a seasonal high water table and at times are partly covered by water.

The minor soils in this unit are the well drained Cahaba and Latonia soils at slightly higher elevations and the poorly drained Guyton soils in depressions and drainageways.

About half of the acreage of this unit is used for cultivated crops, and most of the rest is wooded. About half of Columbus Air Force Base and most of the residential and commercial areas of the city of Columbus are in this unit. Prentiss soils have good potential for cultivated crops; Rosella and Steens soils, however, have poor potential because of wetness, the high water table, and the high amount of sodium in the Rosella soils. These soils have good potential as woodland. They have poor potential for residential and commercial uses because of wetness and low strength. Potential for development of wetland wildlife habitat is good on Rosella soils and poor on Prentiss and Steens soils. Potential for development of openland wildlife habitat is good.

5. Savannah-Caledonia-Guyton

Moderately well drained, well drained, and poorly drained, loamy soils on uplands

Areas of these nearly level to sloping soils occur mainly on the east side of the Tombigbee River.

This map unit occupies about 13 percent of the county. About 40 percent of the unit is Savannah soils, 15 percent is Caledonia soils, 7 percent is Guyton soils, and 38 percent is soils of minor extent.

The moderately well drained Savannah soils in some places are at slightly lower elevations than the well drained Caledonia soils. The poorly drained Guyton soils are in depressions and are under water for brief periods.

The minor soils in this unit are the moderately well drained Paden soils, the somewhat poorly drained Pheba soils, and the well drained Smithdale and Pikeville soils. Paden and Pheba soils are nearly level, and Smithdale and Pikeville soils are strongly sloping.

This unit is used mainly for cultivated crops, but some small tracts are wooded. These soils have good potential for cultivated crops. They have fair potential as woodland. Because of wetness and slow permeability on some of the soils, potential for residential and other urban uses is fair. Potential is poor for development of wetland wildlife habitat and good for development of openland wildlife habitat.

Nearly level to steep soils; on uplands

Two map units in the county consist dominantly of sloping soils on ridgetops and hilly soils on dissected side slopes.

6. Smithdale-Savannah

Well drained and moderately well drained, loamy soils

Areas of these hilly soils are in the eastern part of the county.

This map unit occupies about 6 percent of the county. About 32 percent of the unit is Smithdale soils, 32 percent is Savannah soils, and 36 percent is soils of minor extent.

The steep, well drained Smithdale soils are on side slopes, and the nearly level to sloping, moderately well drained Savannah soils are on side slopes and ridges.

The minor soils of this unit are the well drained Saffell and Pikeville soils on side slopes and the well drained Ruston soils on ridges.

This unit is mainly wooded, but some ridges and side slopes are used for cultivated crops and pasture. Steep slopes are the main limitations for farming and for most other uses. These soils have poor potential for cultivated crops and fair potential as woodland. Mainly due to steep slopes, potential for residential and other urban uses is poor. Potential is poor for development of wetland wildlife habitat and fair for development of openland wildlife habitat.

7. Smithdale-Sweatman

Well drained, loamy soils

Areas of these hilly soils are partly in the city of Columbus but are mostly north of Columbus.

This map unit occupies about 2 percent of the county. About 35 percent of the unit is Smithdale soils, 24 percent is Sweatman soils, and 41 percent is soils of minor extent.

The well drained Smithdale soils are mainly on the upper parts of side slopes and some narrow ridges. The well drained Sweatman soils are mainly on the lower parts of side slopes but are on ridgetops in a few places.

The minor soils in this unit are the well drained Ruston soils and the moderately well drained Savannah soils on ridges and the well drained Saffell soils on side slopes.

This unit is mostly wooded, but it is being urbanized. Steep slopes and the clayey subsoil are the main limitations of these soils for farming and for most other uses. These soils have poor potential for cultivated crops. They have fair potential as woodland. Because of steep slopes and the clayey subsoil, in some places potential for residential and other urban uses is poor. Potential for development of wetland and openland wildlife habitat is poor.

Nearly level to steep soils over chalk; on uplands

Four map units in the county are made up of nearly level to steep, unstable soils over chalk. These soils formed mainly in clays underlain by chalk or marl.

8. Vaiden-Okolona-Brooksville

Somewhat poorly drained and well drained, clayey soils

Areas of these nearly level to sloping soils are scattered throughout the Blackland Prairies.

This map unit occupies about 22 percent of the county. About 53 percent of the unit is Vaiden soils, 16 percent is Okolona soils, 6 percent is Brooksville soils, and 25 percent is soils of minor extent.

The somewhat poorly drained Vaiden soils are nearly level to sloping. The well drained Okolona soils and the somewhat poorly drained Brooksville soils are nearly level or very gently sloping.

The minor soils in this unit are the well drained Binnsville soils on uplands and the moderately well drained Catalpa and Griffith soils on flood plains.

This unit is used mainly for cultivated crops. The rest is small tracts and patches of woodland and some areas are used for pasture. This unit has good potential for cultivated crops. In most areas erosion is a hazard, and soil conservation practices are needed. These soils have poor potential as woodland. Because of wetness and high shrink-swell clays, potential for residential and other urban uses is poor. Potential is poor for development of wetland wildlife habitat and fair for development of openland wildlife habitat.

9. Okolona-Brooksville-Sumter

Well drained and somewhat poorly drained, clayey soils and well drained, loamy soils

Areas of these nearly level to sloping soils are scattered throughout the western part of the county west of the Tombigbee River in the Blackland Prairies.

This map unit occupies about 5 percent of the county. About 40 percent of the unit is Okolona soils, 25 percent is Brooksville soils, 20 percent is Sumter soils, and 15 percent is soils of minor extent.

The well drained Okolona soils and the somewhat poorly drained Brooksville soils are nearly level or very gently sloping. The well drained Sumter soils are gently sloping or sloping.

The minor soils in this unit are the well drained Binnsville and Demopolis soils on uplands and the somewhat poorly drained Leeper soils on flood plains.

This unit is used mainly for cultivated crops. The rest is pasture or patchy areas of woodland. These soils have good potential for cultivated crops. In most areas erosion is a hazard, and erosion control practices are needed. These soils have poor potential as woodland. Because of wetness and high shrink-swell clays, potential for residential and other urban uses is poor. Potential is poor for development of wetland wildlife habitat and fair for development of openland wildlife habitat.

10. Sumter-Kipling

Well drained and somewhat poorly drained, loamy soils

Areas of these nearly level to steep soils are mainly on the west side of the county in the Blackland Prairies.

This map unit makes up about 8 percent of the county. About 45 percent of the unit is Sumter soils, 22 percent is Kipling soils, and 33 percent is soils of minor extent.

The well drained Sumter soils are gently sloping to steep, and the somewhat poorly drained Kipling soils are nearly level to sloping.

The minor soils in this unit are the well drained Binnsville and Demopolis soils and the somewhat poorly drained Vaiden soils on upland ridges and side slopes and some soils that contain gullies and chalk outcrops.

This unit is used mainly for pasture. Some of the more gently sloping soils are used for cultivated crops. Potential for crops is poor. Areas of both crops and pasture are marked by gullies or chalk outcrops; where these gullies and outcrops occur, there is either little vegetation or mainly cedar and bois d'arc trees. Because of steep slopes, shallow depth over rock, and the severe erosion hazard, these soils have poor potential as woodland. Potential for residential and other urban uses is poor because of high shrink-swell clays and, in some places, steep slopes. Potential is poor for development of wetland wildlife habitat and fair for development of openland wildlife habitat.

11. Kipling-Savannah

Somewhat poorly drained and moderately well drained, loamy soils

The only area of these nearly level to sloping soils is in the northwestern part of the county.

This map unit occupies about 2 percent of the county. About 34 percent of the unit is Kipling soils, about 32 percent is Savannah soils, and 34 percent is soils of minor extent.

The somewhat poorly drained Kipling soils are in broad, nearly level areas and on gently sloping to sloping side slopes. The moderately well drained Savannah soils are mainly gently sloping or sloping and are on ridgetops.

The minor soils in this unit are the well drained Sumter soils and the somewhat poorly drained Vaiden soils on uplands and the somewhat poorly drained Leeper soils on flood plains.

This unit is used mainly for pasture or cultivated crops, and the rest is wooded. These soils have fair potential for cultivated crops and fair potential as woodland. Because of slow permeability and, in places, high shrink-swell clays, potential for residential and other urban uses is poor. Potential is poor for development of wetland wildlife habitat and fair for development of openland wildlife habitat.

Broad land use considerations

About half of the land area of Lowndes County is used for cultivated crops. Most of the cultivated acreage is in the western part of the county. Several areas have good potential for farming. These areas are identified as map units 1, 3, 5, 8, and 9 on the general soil map.

Map unit 1, which consists mainly of Leeper and Catalpa soils, is on flood plains. The soils are subject to occasional flooding, which causes slight damage to crops. Wetness is the main limitation for cultivated crops.

Map unit 3, which consists mainly of Cahaba, Prentiss, and Guyton soils, is on the first bench above the flood plain of the Tombigbee River. Most areas are subject to at least brief flooding about once in 5 years. This flooding, however, is not likely to cause extensive damage to crops.

Map unit 5, which consists mainly of Savannah, Caledonia, and Guyton soils, is in the eastern part of the county. Because the soils are loamy, land preparation can begin early in spring. Soil erosion is the main limitation for cultivated crops.

Map units 8 and 9, which consist mainly of Vaiden, Okolona, Brooksville, and Sumter soils, are in the western part of the county and in the Blackland Prairies. Stands are established only with difficulty in places because of the fine textured surface layer. Soil erosion and wetness are the main limitations for cultivated crops.

About 40 percent of the land area in the county is woodland. All map units in the county except 8, 9, and 10, which are in the Blackland Prairies, have fair or good potential as woodland. Commercially valuable trees do not grow well on Brooksville, Okolona, and Sumter soils. Kipling and Vaiden soils have fair potential as woodland.

About 24,000 acres of Lowndes County is urban or built-up areas. In general, the soils having highest potential for urban uses are nearly level to gently sloping areas of Caledonia and Savannah soils and areas of Prentiss soils that are not subject to flooding. These areas are identified as units 4 and 5 on the general soil map. Prentiss and Savannah soils are mainly limited by wetness and by the slow permeability in the fragipan. Slow permeability is a severe limitation for septic tank absorption fields during periods of heavy use.

Map units 1, 2, and 3 have poor potential for urban development mainly because of the hazard of flooding. Map units 8, 9, 10, and 11 have poor potential for urban development mainly because of the high shrink-swell clays, which cause foundations to crack, and the slow permeability, which causes absorption fields to fail during periods of heavy use.

Hilly areas of Smithdale and Sweatman soils in map units 6 and 7 have poor potential for urban development mainly because of slope. There are places in these hilly areas, however, that are well suited as sites for houses and small commercial buildings.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the

survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have profiles that are almost alike make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Caledonia silt loam, 0 to 2 percent slopes, is one of several phases within the Caledonia series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes and soil associations.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Smithdale-Saffell complex, 15 to 35 percent slopes, is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Nugent-Jena association is an example.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Pits is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 5, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

An—Annemaine loam. This is a moderately well drained soil in flat areas. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark brown loam about 5 inches thick. The subsoil extends to a depth of about 42 inches. It is about 14 inches of yellowish red clay; 14 inches of clay loam mottled in shades of red, gray, and brown; and 9 inches of yellowish brown loam. This is underlain to a depth of 60 inches by brownish yellow sand.

This soil is strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Cahaba soils and small areas of soils that do not have gray mottles in the lower part of the subsoil.

About 75 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, and truck crops. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. The soil is sometimes slow to dry because of the slowly permeable subsoil. It is also subject to flooding for brief periods.

This soil has fair potential for loblolly pine, shortleaf pine, yellow-poplar, and sweetgum. Wetness is the main limitation to woodland use and management.

Potential is poor for most urban uses because of wetness and flood hazard.

This soil is in capability subclass IIw and woodland suitability group 3w8.

BrA—Brooksville silty clay, 0 to 1 percent slopes. This is a somewhat poorly drained soil on broad flats on uplands.

Typically, the surface layer is very dark grayish brown and dark grayish brown silty clay about 38 inches thick. It has brownish mottles in the lower 30 inches. The next layer is mottled, brownish clay to a depth of about 55 inches. This is underlain to a depth of 80 inches by light olive brown clay that has grayish mottles.

This soil is strongly acid to slightly acid in the surface layer and neutral to mildly alkaline below. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks during dry periods. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Okolona, Sumter, and Vaiden soils.

Most of the acreage of this soil is cultivated or used for pasture and hay. The rest is idle.

Potential is good for cotton, soybeans, and pasture plants and fair for corn. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. Row arrangement is needed in some areas to remove excess surface water. This soil can be tilled within only a narrow range of moisture content because of the clayey texture of the surface layer.

This soil has poor potential for eastern redcedar. Clayey texture and alkaline reaction in the subsoil are the main limitations to woodland use and management.

Potential is poor for most urban uses because of very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIw and woodland suitability group 4c2c.

BrB—Brooksville silty clay, 1 to 3 percent slopes. This is a somewhat poorly drained soil on uplands.

Typically, the surface layer is very dark grayish brown and dark grayish brown silty clay about 38 inches thick. It has brownish mottles in the lower 30 inches. The next layer is mottled, brownish clay to a depth of about 55 inches. This is underlain to a depth of 80 inches by light olive brown clay that has grayish mottles.

This soil is strongly acid to slightly acid in the surface layer and neutral to mildly alkaline below. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks during dry periods. Runoff is slow to medium, and the erosion hazard is moderate in cultivated areas.

Included with this soil in mapping are small areas of Okolona, Sumter, and Vaiden soils. Also included are small areas in which the surface layer has been rilled and thinned by erosion and a few shallow gullies.

Most of the acreage of this soil is cultivated or used for pasture (fig. 2) an hay. The rest of idle.

Potential is good for cotton, soybeans, and pasture plants and fair for corn. Because of the erosion hazard, cultivated crops should be grown only about 1 year in 3; close-growing crops are needed the rest of the time. Such management practices as crop residue use and minimum tillage are needed. This soil is difficult to till, and stands are difficult to establish in places because of the clayey texture of the surface layer.

This soil has poor potential for eastern redcedar. Clayey texture and alkaline reaction in the subsoil are the main limitations to woodland use and management.

Potential is poor for most urban uses because of high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIe and woodland suitability group 4c2c.

CaA—Cahaba fine sandy loam, 0 to 2 percent slopes. This is a well drained soil on broad flats.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. Spots of strong brown material are mixed into this layer. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The lower part, to a depth of 40 inches, is strong brown fine sandy loam. This is underlain to a depth of about 80 inches by yellowish brown loamy sand and brownish yellow sand.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Latonia and Prentiss soils and small areas of a soil that has a browner subsoil than Cahaba soils.

Most of the acreage of this soil is used for row crops or pasture, and a few areas have been replanted to pine trees.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. This soil is easy to till and can be cultivated over a wide range of moisture content without crusting or packing.

This soil has good potential for loblolly pine, slash pine, sweetgum, white oak, cherrybark oak, and red oak. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations.

This soil is in capability class I and woodland suitability group 2o7.

CaB—Cahaba fine sandy loam, 2 to 5 percent slopes. This is a well drained soil on the first bench above the flood plains of major streams.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. Spots of strong brown material are mixed into this layer. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The lower part, to a depth of 40 inches, is strong brown fine sandy loam. This is underlain to a depth of about 80 inches by yellowish brown loamy sand and brownish yellow sand.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is

medium. Runoff is slow, and the erosion hazard is slight to moderate.

Included with this soil in mapping are small areas of Latonia and Prentiss soils and small areas of a soil that has a browner subsoil than Cahaba soils.

Most of the acreage of this soil is used for row crops or pasture. The rest is patches of woodland.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. Erosion can be controlled if supporting grassed waterways and parallel terraces are constructed. This soil is easy to till and can be cultivated over a wide range of moisture content.

This soil has good potential for loblolly pine, slash pine, sweetgum, white oak, cherrybark oak, and red oak. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations.

This soil is in capability subclass IIe and woodland suitability group 2o7.

CbA—Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded. This is a well drained soil on broad flats.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. Spots of strong brown material are mixed into this layer. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The lower part, to a depth of 40 inches, is strong brown fine sandy loam. This is underlain to a depth of about 80 inches by yellowish brown loamy sand and brownish yellow sand.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Latonia and Prentiss soils and small areas of a soil that has a browner subsoil than Cahaba soils.

Most of the acreage of this soil is used for row crops or pasture, but pine trees have been planted in some areas.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. Unless protected, this soil is subject to occasional flooding for brief periods. Flooding damages crops in some areas. This soil is easy to till and can be cultivated over a wide range of moisture content without crusting or packing.

This soil has good potential for loblolly pine, sweetgum, yellow-poplar, and cherrybark oak. There are no significant limitations to woodland use or management.

Potential is poor for most urban uses because of the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 2o7.

CbB—Cahaba fine sandy loam, 2 to 5 percent slopes, occasionally flooded. This is a well drained soil on stream terraces.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. Spots of strong brown material are mixed into this layer. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The lower part, to a depth of 40 inches, is strong brown fine sandy loam. This is underlain to a depth of about 80 inches by yellowish brown loamy sand and brownish yellow sand.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow to medium, and the erosion hazard is slight to moderate.

Included with this soil in mapping are small areas of Latonia and Prentiss soils and small areas of a soil that has a browner subsoil than Cahaba soils.

Most of the acreage of this soil is used for row crops or pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. Erosion can be controlled by the use of proper row arrangement, grassed waterways, and parallel terraces. This soil is subject to occasional flooding for brief periods. It is easy to till and can be cultivated over a wide range of moisture content.

This soil has good potential for loblolly pine, sweetgum, yellow-poplar, and cherrybark oak. There are no significant limitations to woodland use or management.

Potential is poor for most urban uses because of the flood hazard.

This soil is in capability subclass IIe and woodland suitability group 2o7.

CL—Cahaba-Latonia association, occasionally flooded. This association consists of well drained soils on the first bench above the flood plains of major streams. Slopes range from 0 to 2 percent. Areas range from about 300 to about 5,000 acres. The topography consists mainly of broad, nearly level, wooded flats, a few depressions, and a few intermittent stream channels having scarps of as much as 15 feet adjacent to the flood plains. The composition of this unit varies among mapped areas, but mapping was controlled well enough for the expected use of the soils.

Cahaba soils make up about 40 percent of the unit, and Latonia soils, about 32 percent. Included soils make up the remaining 28 percent.

The well drained Cahaba soils occur on broad flats. Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. Spots of strong brown material are mixed into this layer. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The lower part, to a depth of 40 inches, is strong brown fine sandy loam. This is underlain to a depth of

about 80 inches by yellowish brown loamy sand and brownish yellow sand.

Cahaba soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

The well drained Latonia soils generally occur in the highest areas of the broad flats. Typically, the surface layer is dark brown loamy sand about 7 inches thick. The subsoil, to a depth of 42 inches, is dark brown and strong brown sandy loam. This is underlain to a depth of 70 inches by very pale brown sand.

Latonia soils are strongly acid or very strongly acid. Permeability is moderately rapid, and available water capacity is medium to low. Runoff is slow, and the erosion hazard is slight.

Included with these soils in mapping are small areas of poorly drained and somewhat poorly drained soils in depressions and small stream channels.

Most of the acreage of this unit is woodland. Many of the broad flats are in pine plantations, and the low areas are in hardwoods. Unless protected, the dominant soils, which are in higher areas, are subject to occasional flooding for brief periods. At most, crops are subject to only slight flood damage in higher areas.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. The addition of crop residue helps maintain organic matter content. These soils are easy to till and can be cultivated over a wide range of moisture content without crusting or packing.

These soils have good potential for loblolly pine, yellow-poplar, sweetgum, and cherrybark oak.

Potential is poor for urban uses because of the flood hazard.

These soils are in capability subclass IIw. Cahaba soils are in woodland suitability group 2o7, and Latonia soils are in woodland suitability group 2o1.

CoA—Caledonia silt loam, 0 to 2 percent slopes. This is a well drained soil on broad flats on uplands.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil extends to a depth of about 26 inches. It is 6 inches of dark red silt loam and 13 inches of dark reddish brown clay loam. The lower part to a depth of about 86 inches is dark red clay loam and sandy clay loam.

This soil is neutral to very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Paden and Savannah soils.

About 90 percent of the acreage of this soil is cultivated. The rest is pasture.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. The addition of crop residue improves infiltration and helps prevent crusting and packing.

This soil has good potential for loblolly pine, cherrybark oak, and sweetgum. There are no significant limitations to woodland use or management.

Potential is fair for most urban uses. Shrink-swell potential is a moderate limitation.

This soil is in capability class I and woodland suitability group 2o7.

CoB—Caledonia silt loam, 2 to 5 percent slopes. This is a well drained soil on uplands.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil extends to a depth of about 26 inches. It is 6 inches of dark red silt loam and 13 inches of dark reddish brown clay loam. The lower part to a depth of about 86 inches is dark red clay loam and sandy clay loam.

This soil is neutral to very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow to medium, and the erosion hazard is slight to moderate.

Included with this soil in mapping are small areas of Paden and Savannah soils.

Most of the acreage of this soil is used for row crops or pasture. The rest is small patches of woodland.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. Erosion can be controlled with supporting grassed waterways, stripcropping, parallel terraces, and minimum tillage.

This soil has good potential for loblolly pine, cherrybark oak, and sweetgum. There are no significant limitations to woodland use or management.

Potential is fair for most urban uses. Shrink-swell potential is a moderate limitation.

This soil is in capability subclass IIe and woodland suitability group 2o7.

CoC2—Caledonia silt loam, 5 to 8 percent slopes, eroded. This is a well drained soil on uplands. In most places, the surface layer has been thinned by erosion. In some plowed areas, subsoil material has been mixed into the surface layer.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil extends to a depth of about 26 inches. It is 6 inches of dark red silt loam and 13 inches of dark reddish brown clay loam. The lower part to a depth of about 86 inches is dark red clay loam and sandy clay loam.

This soil is neutral to very strongly acid. Permeability is moderate, and available water capacity is high or very high. Runoff is medium to rapid, and the erosion hazard is severe in cultivated areas.

Included with this soil in mapping are small areas of Pikeville and Savannah soils.

About half of the acreage of this soil is cultivated. The rest is pasture or is idle.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Erosion can be controlled by using cropping systems and water control measures designed to slow runoff and reduce erosion. Supporting grassed waterways, stripcropping, parallel terraces, and minimum tillage are effective in controlling erosion. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for loblolly pine, cherrybark oak, and sweetgum. There are no significant limitations to woodland use or management.

Potential is fair for most urban uses. Shrink-swell potential is a moderate limitation.

This soil is in capability subclass IIIe and woodland suitability group 2o7.

Cp—Catalpa silty clay. This is a moderately well drained, alluvial soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark grayish brown silty clay about 21 inches thick. The upper part of the subsoil, to a depth of 35 inches, is dark grayish brown silty clay that has olive brown mottles. The lower part to a depth of 60 inches is clay mottled in shades of brown.

This soil is slightly acid to moderately alkaline. Permeability is slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds in some low areas for short periods. The erosion hazard is slight.

Included with this soil in mapping are small areas of Leeper and Griffith soils.

Most of the acreage of this soil is used for row crops or pasture. The rest is hayland.

Potential is good for cotton, corn, soybeans, and pasture plants. With good management, row crops can be grown every year. This soil is subject to occasional flooding for brief periods, mainly during winter and early in spring. Some areas are flooded more frequently but not during the growing season for most crops. Proper row arrangement and field ditches are needed to remove excess surface water. This soil is difficult to till, and good stands are difficult to establish in places because of the clayey texture of the surface layer. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for eastern cottonwood, green ash, and sweetgum. Wetness is a moderate limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for urban uses because of wetness, flood hazard, and high shrink-swell potential.

This soil is in capability subclass IIw and woodland suitability group 1w5.

CT—Catalpa-Leeper association. This association consists of moderately well drained and somewhat poorly drained, clayey soils on flood plains. Slopes range from 0 to 2 percent. The topography consists of ridges and swales and a few small oxbow lakes and old stream channels. Areas range from about 500 to 2,000 acres. The composition of this unit varies among mapped areas, but mapping was controlled well enough for the expected use of the soils.

Catalpa soils and closely similar soils make up about 31 percent of the unit, and Leeper soils and closely similar soils, about 29 percent. Included soils make up the remaining 40 percent.

The moderately well drained Catalpa soils generally occur at slightly higher elevations than Leeper soils. Typically, the surface layer is very dark grayish brown silty clay about 21 inches thick. The upper part of the subsoil, to a depth of 35 inches, is dark grayish brown silty clay that has olive brown mottles. The lower part to a depth of 60 inches is clay mottled in shades of brown.

Catalpa soils are slightly acid to moderately alkaline. Permeability is slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds in some low areas for short periods. The erosion hazard is slight.

The somewhat poorly drained Leeper soils generally occur at slightly lower elevations and in some depressions. Typically, the surface layer is dark grayish brown silty clay about 6 inches thick. The subsoil extends to a depth of 33 inches. It is about 10 inches of dark grayish brown clay that has dark brown mottles and 17 inches of gray clay that has yellowish brown mottles. This is underlain to a depth of about 60 inches by gray clay that has yellowish brown and dark brown mottles.

Leeper soils are medium acid to mildly alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds in some low areas.

Included with these soils in mapping are small areas of Griffith soils at higher elevations and Tuscumbia soils in depressions. Also included, on flood plains on the west side of the Tombigbee River, are small areas of well drained and moderately well drained, loamy soils.

Most of the acreage of these soils is in hardwood forests.

Unless protected, these soils have poor potential for most row crops because of frequent flooding in winter and spring. They have good potential for some pasture plants.

These soils have good potential for eastern cottonwood, green ash, sweetgum, and American sycamore. Wetness is a moderate limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for most urban uses because of the flood hazard, wetness, and high shrink-swell potential.

These soils are in capability subclass IVw. Catalpa soils are in woodland suitability group 1w5, and Leeper soils are in woodland suitability group 1w6.

Cu—Columbus silt loam. This is a moderately well drained soil on broad flats. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil extends to a depth of about 52 inches. It is about 10 inches of dark brown clay loam; 12 inches of yellowish brown clay loam mottled in shades of brown, gray, and red; and 24 inches of light brownish gray sandy clay loam mottled in shades of brown. This is underlain to a depth of 76 inches by sandy loam and loamy sand mottled in shades of gray and brown.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Annemaine, Steens, and Guyton soils. Also included are a few small areas of soils having slopes of as much as 5 percent.

About 60 percent of the acreage of this soil is cultivated or used for pasture. The rest is wooded.

Potential is good for soybeans and pasture plants. With good management, row crops can be grown every year. Seedbed preparation and tillage are sometimes delayed because of wetness. Unless protected, this soil is subject to occasional flooding for brief periods. This flooding damages crops in some areas. Row arrangement and field ditches are needed in most areas to remove excess surface water. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for loblolly pine, sweetgum, water oak, and yellow-poplar. Wetness is a moderate limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during the drier season.

Potential is poor for urban uses because of the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 2w8.

DeC2—Demopolis-Binnsville complex, 2 to 8 percent slopes, eroded. This complex consists of upland soils in the Blackland Prairies. Areas range from 15 to 150 acres. The individual soils of this complex exist in such an intricate pattern and the composition of the unit is so variable that separate mapping at the scale used was impractical. The degree of erosion in this map unit is variable, but in most areas the surface layer has been thinned by erosion, and in some areas the subsoil is exposed. In some areas shallow gullies and patches of chalk outcrops are common.

Demopolis soils make up about 36 percent of this unit, and Binnsville soils, about 21 percent. Included soils make up the remaining 43 percent. Both of the dominant soils and at least one of the less extensive soils occur in each mapped area.

The well drained Demopolis soils occur on uplands. Typically, the surface layer is dark grayish brown silty clay loam about 7 inches thick. It is underlain by weakly consolidated fragments of chalk to a depth of about 12 inches and by light gray chalk to a depth of 40 inches or more.

Demopolis soils are mildly alkaline to moderately alkaline. Available water capacity is medium in the surface layer and low in the firm chalk. Infiltration is slow, and permeability is moderately slow above the chalk. The erosion hazard is severe.

The well drained Binnsville soils occur on uplands. Typically, the surface layer is very dark grayish brown silty clay loam about 11 inches thick. This is underlain to a depth of about 40 inches by light gray chalk.

Binnsville soils are mildly alkaline to moderately alkaline. Available water capacity is medium in the surface layer and low in the chalk. Infiltration is slow, and permeability is slow above the chalk. The erosion hazard is severe.

Included with these soils in mapping are small areas of Okolona and Sumter soils and small areas of chalk outcrops. Also included in small alluvial areas are Griffith soils.

Most of the acreage of these soils was cleared at one time, but some has been allowed to revert to cedar and bois d'arc trees. Most of the cleared acreage is now used for pasture or hay crops, and the rest is cultivated.

Potential is poor for cultivated crops and pasture. The main limitation is droughtiness because of the shallow depth over chalk. Cover crops are needed as much of the time as possible to reduce the erosion hazard. Small grain, King Ranch bluestem, tall fescue, and bermudagrass are fairly well suited.

These soils have poor potential for commercial trees and for urban uses because of shallow depth over chalk.

These soils are in capability subclass VIe and woodland suitability group 4d3c.

Gr—Griffith silty clay. This is a moderately well drained, nearly level soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer extends to a depth of about 41 inches. It is about 7 inches of very dark gray silty clay and 34 inches of very dark grayish brown clay. It is mottled in the lower 14 inches. This is underlain to a depth of 65 inches by dark gray clay mottled in shades of brown.

This soil is neutral to moderately alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds in a few low areas. The erosion hazard is slight.

Included with this soil in mapping are small areas of Catalpa and Leeper soils and small areas of soils that are calcareous throughout.

Most of the acreage of this soil is used for row crops. The rest is in pasture and hay.

Potential is good for cotton, corn, soybeans, and pasture plants. Good stands are difficult to establish in places because of the clayey texture of the surface layer. This soil is subject to flooding. Except in protected

areas, this flooding damages crops. With good management, row crops can be grown every year. Proper row arrangement and field ditches are needed to remove excess surface water. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for eastern cottonwood, green ash, sweetgum, and sycamore. Seedling mortality and wetness are severe limitations.

Potential is poor for urban uses because of very high shrink-swell potential and the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 1w6.

Gu—Guyton silt loam. This is a poorly drained soil on flats and in depressions. Slopes range from 0 to 2 percent.

Typically, the surface layer is grayish brown silt loam about 6 inches thick. The subsurface layer, to a depth of 18 inches, is light brownish gray silt loam that has brownish mottles. The upper part of the subsoil, to a depth of 42 inches, is gray silty clay loam that has yellowish brown mottles and tongues of light brownish gray silt loam. The lower part to a depth of 75 inches is gray and light brownish gray silt loam that has yellowish brown mottles and tongues of grayish silt.

This soil is strongly acid or very strongly acid. Permeability is slow, and available water capacity is high. Runoff is slow, and water ponds in some areas. The erosion hazard is slight.

Included with this soil in mapping are small areas of Paden and Pheba soils.

Most of the acreage of this soil is in hardwood timber. A few areas are used for pasture or hay.

Potential is poor for most commonly grown crops. Yields are usually low because of wetness. The soil has good potential for pasture.

This soil has good potential for loblolly pine, sweetgum, green ash, southern red oak, and water oak. Wetness is a severe limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for most urban uses because of flooding and wetness.

This soil is in capability subclass IIIw and woodland suitability group 2w9.

Gy—Guyton silt loam, low terrace. This is a poorly drained soil on broad flats and stream terraces. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsurface layer is light brownish gray silt loam to a depth of about 10 inches. The subsoil to a depth of 80 inches is grayish brown clay loam and sandy clay loam mottled in shades of brown and yellow.

This soil is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. Runoff is very slow, and the erosion hazard is slight. This soil is subject to flooding for brief periods except in protected areas.

Included with this soil in mapping are small areas of Rosella and Steens soils.

Most of the acreage of this soil is woodland, but some areas are used for crops and pasture.

Potential is fair for row crops and pasture, but high yields can be obtained. Where crops are grown, such management practices as returning crop residue to the soil, row arrangement, and field ditches to remove excess surface water are needed. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has good potential for loblolly pine, sweetgum, water oak, and willow oak. Wetness is the main limitation in managing and harvesting the tree crop, but this limitation can be partially overcome by using special equipment and by logging during the drier seasons.

Potential is poor for most urban uses because of flooding and wetness.

This soil is in capability subclass IIIw and woodland suitability group 2w9.

Je—Jena loam. This is a well drained soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark brown loam about 5 inches thick. The upper part of the subsoil is dark brown and dark yellowish brown silt loam and loam to a depth of about 26 inches. The lower part, to a depth of about 45 inches, is dark yellowish brown and yellowish brown loam mottled in shades of gray and brown. It is underlain to a depth of 60 inches by loam mottled in shades of brown and gray.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Kinston, Mantachie, and Nugent soils.

About half of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, truck crops, and pasture plants. With good management, row crops can be grown every year. This soil is subject to occasional flooding for brief periods. Some areas are flooded more frequently, but not during the growing season. Row arrangement and field ditches are needed to remove excess surface water.

This soil has good potential for loblolly pine, sweetgum, water oak, and white oak. There are no significant limitations to woodland use and management.

Potential is poor for most urban uses because of the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 1o7.

JM—Jena-Mantachie association. This association consists of well drained and somewhat poorly drained soils on flood plains. These flood plains are as wide as 1 mile and have oxbow lakes and old stream channels.

Slopes range from 0 to 2 percent. Areas range from about 160 to 800 acres. The topography consists of ridges and swales with relief of as much as 10 feet. The composition of this unit varies among mapped areas, but mapping was controlled well enough for the expected use of the soils.

Jena soils make up about 45 percent of the unit, and Mantachie soils, about 20 percent. Included soils make up the remaining 35 percent.

The well drained Jena soils generally occur on the higher elevations and along stream channels. Typically, the surface layer is dark brown loam about 5 inches thick. The upper part of the subsoil is dark brown and dark yellowish brown silt loam and loam to a depth of about 26 inches. The lower part, to a depth of about 45 inches, is dark yellowish brown and yellowish brown loam mottled in shades of gray and brown. It is underlain to a depth of 60 inches by loam mottled in shades of brown and gray.

Jena soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is medium, and the erosion hazard is slight.

The somewhat poorly drained Mantachie soils occur on slightly lower elevations than Jena soils. Typically, the surface layer is dark brown loam about 8 inches thick. The upper part of the subsoil is mottled yellowish brown, gray, and dark brown loam to a depth of about 18 inches. The lower part to a depth of 60 inches is light brownish gray loam mottled in shades of brown and red. This is underlain to a depth of 72 inches by gray clay loam mottled in shades of brown.

Mantachie soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow, and water ponds in low areas. The erosion hazard is slight.

Included with these soils in mapping are small areas of soils that are under water the year round and small areas of soils that are less acid than Jena and Mantachie soils.

Most of the acreage of these soils is in hardwood forest. Because these areas are flooded several times each year, they have poor potential as cropland.

These soils have good potential for loblolly pine, sweetgum, yellow-poplar, and cherrybark oak. Wetness is a limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for most urban uses because of wetness and the flood hazard.

These soils are in capability subclass Vw and woodland suitability group 1w9.

Kn—Kinston loam. This is a poorly drained, alluvial soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown loam about 7 inches thick. It has dark yellowish brown mottles. The subsoil to a depth of about 65 inches is light brownish gray loam mottled in shades of brown.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow, and some areas are ponded. This soil is subject to frequent flooding. The erosion hazard is slight.

Included with this soil in mapping are small areas of Mantachie soils and small areas of soils that have a more clayey subsoil.

Most of the acreage of this soil is in hardwood timber. A few cleared areas are used for pasture and hay.

Because of the severe flood hazard and the high water table, this soil has poor potential as cropland.

This soil has good potential for loblolly pine, sweetgum, white oak, cherrybark oak, and eastern cottonwood. The use of equipment in managing and harvesting tree crops is limited by wetness. The limitation can be overcome by using special equipment and by logging during the drier seasons. Another management concern is high seedling mortality rate.

Potential is poor for urban uses because of wetness and the flood hazard.

This soil is in capability subclass Vw and woodland suitability group 1w9.

KpA—Kipling silty clay loam, 0 to 2 percent slopes. This is a somewhat poorly drained soil on broad flats.

Typically, the surface layer is dark yellowish brown silty clay loam about 5 inches thick. The subsoil, to a depth of 48 inches, is clay mottled in shades of brown, gray, and red. This is underlain to a depth of 81 inches by mottled brownish and grayish clay and silty clay.

This soil is medium acid to very strongly acid in the upper part of the subsoil and strongly acid to moderately alkaline in the lower part. Permeability is very slow, and available water capacity is high. Runoff is slow, and the erosion hazard is slight. This soil shrinks and cracks during dry periods.

Included with this soil in mapping are small areas of Brooksville, Demopolis, and Vaiden soils. Also included are a few areas in which the surface layer has been thinned by sheet erosion and a few areas of shallow rills.

Most of the acreage of this soil is cultivated or used for pasture. The rest is scattered patches of woodland.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Control of surface water is a concern. Seedbed preparation and tillage are difficult because of wetness and the clayey texture of the surface layer. With good management, row crops can be grown every year. Row arrangement and field ditches are needed to remove excess surface water. Soil tilth can be improved by plowing late in fall and by adding crop residue to the soil.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, water oak, and white oak. Clayey texture and wetness are the main limitations to woodland use and management.

This soil has poor potential for most urban uses because of the very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIIw and woodland suitability group 2c8.

KpB2—Kipling silty clay loam, 2 to 5 percent slopes, eroded. This is a somewhat poorly drained soil on ridges and side slopes. In most places the surface layer has been thinned by erosion. In some plowed areas, subsoil material has been mixed into the surface layer. In a few fields, rills and shallow gullies have exposed the subsoil.

Typically, the surface layer is dark yellowish brown silty clay loam about 5 inches thick. The subsoil, to a depth of 48 inches, is clay mottled in shades of brown, gray, and red. This is underlain to a depth of 81 inches by mottled brownish and grayish clay and silty clay.

This soil is medium acid to very strongly acid in the upper part of the subsoil and strongly acid to moderately alkaline in the lower part. Permeability is very slow, and available water capacity is high. Runoff is slow to medium, and the erosion hazard is moderate in cultivated areas. This soil shrinks and cracks during dry periods.

Included with this soil in mapping are small areas of Brooksville and Vaiden soils and small areas of soils that lack gray mottles in the upper 10 inches of the subsoil.

Most of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Erosion can be controlled by plowing on the contour, using grassed waterways, keeping tillage to a minimum, stripcropping, and constructing parallel terraces. Seedbed preparation and tillage are difficult because of wetness and the clayey texture of the surface layer. Tilth can be improved by plowing in late fall and by adding crop residue to the soil.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, water oak, and white oak. Clayey texture and wetness are the main limitations to woodland use and management.

Potential is poor for most urban uses because of the very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIIe and woodland suitability group 2c8.

KpC2—Kipling silty clay loam, 5 to 8 percent slopes, eroded. This is a somewhat poorly drained soil on side slopes. In most places the surface layer has been rilled and thinned by erosion. In some plowed areas, subsoil material has been mixed into the surface layer. In a few fields, some shallow and deep gullies have exposed the subsoil.

Typically, the surface layer is dark yellowish brown silty clay loam about 3 inches thick. The subsoil, to a depth of 48 inches, is clay mottled in shades of brown, gray, and red. It is underlain to a depth of 81 inches by mottled brownish and grayish clay and silty clay.

This soil is medium acid to very strongly acid in the upper part of the subsoil and strongly acid to moderately alkaline in the lower part. Permeability is very slow, and available water capacity is high. Runoff is medium to rapid, and the erosion hazard is moderate to severe in cultivated areas. This soil shrinks and cracks during dry periods.

Included with this soil in mapping are small areas of Brooksville and Vaiden soils and small areas of soils that lack gray mottles in the upper 10 inches of the subsoil.

About half of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is poor for crops because of the erosion hazard. Where the soil is used for crops, conservation practices such as crop rotation, contour farming, contour stripcropping, vegetated waterways, and minimum tillage are needed. The addition of crop residue helps prevent clodding and packing and helps reduce erosion.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, water oak, and white oak. Clayey texture is the main limitation to woodland use and management.

Potential is poor for most urban uses because of the very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IVe and woodland suitability group 2c8.

La—Latonia loamy sand. This is a well drained soil on broad flats and side slopes. Slopes range from 0 to 5 percent.

Typically, the surface layer is dark brown loamy sand about 7 inches thick. The subsoil, to a depth of 42 inches, is dark brown and strong brown sandy loam. This is underlain to a depth of 70 inches by very pale brown sand.

This soil is strongly acid or very strongly acid. Permeability is moderately rapid, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Cahaba and Prentiss soils and small areas of soils that have a subsoil of loamy sand or sand.

About 85 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, truck crops, and pasture plants. With such management practices as row arrangement, return of crop residues, and minimum tillage, row crops can be grown every year. Planting dates and fertilizer rates are affected by the droughtiness of the soil. This soil is easily tilled and can be cultivated over a wide range of moisture content without crusting or packing.

This soil has good potential for loblolly pine. There are no significant limitations in managing and harvesting the tree crop.

Potential is good for most urban uses.

This soil is in capability subclass IIs and woodland suitability group 2o1.

Lb—Latonia loamy sand, occasionally flooded. This is a well drained soil on broad flats. Slopes range from 0 to 3 percent.

Typically, the surface layer is dark brown loamy sand about 7 inches thick. The subsoil, to a depth of 42 inches, is dark brown and strong brown sandy loam. This is underlain to a depth of 70 inches by very pale brown sand.

This soil is strongly acid or very strongly acid. Permeability is moderately rapid, and available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Cahaba and Prentiss soils and small areas of soils that have a subsoil of loamy sand or sand.

Most of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, truck crops, and pasture plants. With such management practices as row arrangement, return of crop residues, and minimum tillage, row crops can be grown every year. Planting dates and fertilizer rates are affected by the droughtiness of the soil. Unless protected, this soil is subject to occasional flooding for very brief periods. This flooding causes slight damage to crops in places. This soil is easily tilled and can be cultivated over a wide range of moisture content without crusting or packing.

This soil has good potential for loblolly pine (fig. 3). There are no significant limitations in managing and harvesting the tree crop.

Potential is poor for most urban uses because of the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 2o1.

Ld—Latonia-Urban land complex. This complex consists of well drained soils in the city of Columbus and on Columbus Air Force Base. The individual soils of this complex exist in an intricate pattern with cuts and fills for residential buildings, streets, utilities, and other public facilities. Much of the original soil profile was so extensively altered that soil series are not identifiable. Areas range from 20 to 120 acres. Slopes range from 0 to 2 percent.

This unit is about 45 percent Latonia loamy sand and 35 percent Urban land.

Typically, Latonia soils have a surface layer of dark brown loamy sand about 7 inches thick. The subsoil, to a depth of 42 inches, is dark brown and strong brown sandy loam. This is underlain to a depth of 70 inches by very pale brown sand.

Latonia soils are strongly acid or very strongly acid. Permeability is moderately rapid, and available water capacity is medium. Runoff is slow to medium, and the erosion hazard is slight.

Urban land is mostly altered, reworked, or fill material in which no soil profile can be identified. These areas are mostly occupied by homesites and the adjoining streets. There are a few shopping centers and other public service areas with paved parking lots.

Included in mapping are small areas of Cahaba and Prentiss soils.

This unit was not assigned to a capability subclass. Latonia soils are in woodland suitability group 2o1. Urban land was not assigned to a woodland suitability group.

Le—Leeper silty clay. This is a somewhat poorly drained, alluvial soil on broad flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown silty clay about 6 inches thick. The subsoil, to a depth of 33 inches, is dark grayish brown and gray clay that has brownish mottles. This is underlain to a depth of about 60 inches by gray clay that has yellowish brown and dark brown mottles.

This soil is medium acid to mildly alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds in some low areas. The erosion hazard is slight.

Included with this soil in mapping are small areas of Catalpa and Griffith soils.

Most of the acreage of this soil is used for row crops, pasture, or hay. The rest is hardwood timber.

Potential is good for cotton, corn, soybeans, and pasture plants. With such management practices as proper row arrangement and field ditches to remove excess surface water, row crops can be grown every year (fig. 4). This soil is subject to flooding. Unless the soil is protected, this flooding causes slight damage to crops. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for eastern cottonwood, sweetgum, green ash, and sycamore. Wetness is the main limitation to equipment use in managing and harvesting the tree crop. This limitation can be overcome by using special equipment and by logging during the drier season.

Potential is poor for urban uses because of the high shrink-swell potential, wetness, and the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 1w6.

Ma—Mantachie loam. This is a somewhat poorly drained soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark brown loam about 8 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is mottled yellowish brown, gray, and dark brown loam. The lower part, to a depth of 60 inches, is light brownish gray loam mottled in shades of brown and red. This is underlain to a depth of 72 inches by gray clay loam that has brownish mottles.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is slow, and water ponds in low areas. The erosion hazard is slight.

Included with this soil in mapping are small areas of Jena and Kinston soils and small areas of similarly drained soils that have a lighter textured subsoil.

About 70 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With such management practices as proper row arrangement and crop residue use, row crops can be grown every year. Crops on this soil are subject to moderate damage from flooding except in protected areas. Field ditches are needed to remove excess water from low-lying areas. Land leveling is needed in some areas.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and yellow-poplar. Wetness is the main limitation to equipment use in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for urban uses because of wetness and the flood hazard.

This soil is in capability subclass IIw and woodland suitability group 1w9.

NJ—Nugent-Jena association. This association consists of excessively drained and well drained soils on flood plains. These flood plains are as wide as 1/4 mile and have a few small oxbow lakes and old stream channels. Slopes range from 0 to 2 percent. Areas range from about 400 to 600 acres. The topography consists of ridges and swales; local relief is as much as 8 feet. The composition of this unit varies among mapped areas, but mapping was controlled well enough for the expected use of the soils.

Nugent soils make up about 44 percent of the unit, and Jena soils, about 28 percent. Included soils make up the remaining 28 percent.

The excessively drained Nugent soils generally occur along the natural deltas bordering stream channels. Typically, the surface layer is dark brown loamy sand about 10 inches thick. This is underlain to a depth of 61 inches by dark yellowish brown sandy loam, sand, and fine sandy loam that contains strata of brownish, finer textured material.

Nugent soils are medium acid to very strongly acid. Permeability is moderately rapid, and available water capacity is low. Runoff is slow, and the erosion hazard is slight.

The well drained Jena soils generally occur at slightly lower elevations and are farther from the stream channels than Nugent soils. Typically, the surface layer is dark brown loam about 5 inches thick. The upper part of the subsoil, to a depth of about 26 inches, is dark brown and dark yellowish brown silt loam and loam. The lower part, to a depth of about 45 inches, is dark yellowish brown and yellowish brown loam mottled in shades of gray and brown. This is underlain to a depth of 60 inches by loam mottled in shades of brown and gray.

Jena soils are strongly acid or very strongly acid. Permeability is medium, and available water capacity is high. Runoff is medium, and the erosion hazard is slight.

Included with these soils in mapping are small areas of Kinston soils in low places and small areas of Latonia soils on ridges.

Most of the acreage of this unit is in hardwood forest. Because these soils are flooded several times each year, they have poor potential as cropland.

These soils have good potential for loblolly pine, sweetgum, water oak, and willow oak. Equipment limitations are severe because of wetness, but these limitations can be overcome by using special equipment or by logging during drier seasons.

Potential is poor for most urban uses because of wetness and the flood hazard.

These soils are in capability subclass Vw. Nugent soils are in woodland suitability group 2s8, and Jena soils are in woodland suitability group 1w9.

OkA—Okolona silty clay, 0 to 1 percent slopes. This is a well drained soil on broad flats on uplands.

Typically, the surface layer is about 36 inches thick. It is about 21 inches of very dark grayish brown silty clay that has dark grayish brown mottles in the lower 4 inches, and about 15 inches of dark grayish brown clay that has dark yellowish brown mottles. The next layer extends to a depth of about 63 inches. It is 12 inches of dark grayish brown clay that has olive brown mottles, and 15 inches of olive clay that has pale olive mottles. This is underlain to a depth of 72 inches by clay mottled in shades of brown. Firm chalk is at a depth of 72 inches.

This soil is neutral to moderately alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Binnsville, Brooksville, and Sumter soils and small areas of a soil that is very dark gray or black in the upper 12 inches.

About 95 percent of the acreage of this soil is cultivated or used for pasture or hay. The rest is idle.

Potential is good for cotton, soybeans, and pasture plants and fair for corn. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. This soil can be tilled within only a narrow range of moisture content because of the clayey texture of the surface layer. Runoff is slow, and row arrangement is needed to remove excess surface water.

This soil has poor potential for eastern redcedar. Soil reaction and clayey texture are the main limitations to woodland use and management.

Potential is poor for most urban uses because of very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIs and woodland suitability group 4c2c.

OkB—Okolona silty clay, 1 to 3 percent slopes. This is a well drained soil on uplands.

Typically, the surface layer is about 36 inches thick. It is about 21 inches of very dark grayish brown silty clay that has dark grayish brown mottles in the lower 4 inches, and about 15 inches of dark grayish brown clay that has dark yellowish brown mottles. The next layer extends to a depth of about 63 inches. It is 12 inches of dark grayish brown clay that has olive brown mottles, and 15 inches of olive clay that has pale olive mottles. This is underlain to a depth of 72 inches by clay mottled in shades of brown. Firm chalk is at a depth of 72 inches.

This soil is neutral to moderately alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow to medium, and the erosion hazard is moderate in cultivated areas.

Included with this soil in mapping are small areas of Binnsville, Brooksville, and Sumter soils and small areas of a soil that is very dark gray or black in the upper 12 inches. Also included are small areas in which the surface layer has been thinned by erosion, and a few areas of rills and gullies.

Most of the acreage of this soil is used for row crops, pasture, or hay. The rest is idle.

Potential is fair for cotton, soybeans, pasture plants, and corn. Erosion can be controlled by such management practices as crop residue use, minimum tillage, contour farming, and conservation cropping systems. This soil can be tilled within only a narrow range of moisture content because of the clayey texture of the surface layer.

This soil has poor potential for eastern redcedar. Soil reaction and clayey texture are the main limitations to woodland use and management.

Potential is poor for most urban uses because of very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IIe and woodland suitability group 4c2c.

Pa—Paden silt loam. This is a moderately well drained soil on broad flats on uplands. Slopes range from 0 to 2 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil, to a depth of 19 inches, is yellowish brown silt loam. The lower part is a fragipan that extends to a depth of 70 inches or more. It is 10 inches of silt loam mottled in shades of brown and gray, 22 inches of yellowish brown silt loam mottled in shades of gray and red, and 19 inches of loam mottled in shades of brown and red.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Pheba and Savannah soils.

About 90 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With such good management practices as crop residue use and minimum tillage, row crops can be grown every year. Row arrangement and field ditches are needed in some areas to remove excess surface water.

This soil has fair potential for loblolly pine, shortleaf pine, and sweetgum. There are no significant limitations in managing or harvesting the tree crop.

Potential is fair for most urban uses because of wetness. The slow permeability in the fragipan is a limitation for septic tank absorption fields. This limitation can be partially overcome by increasing the size of the absorption area or by modifying the filter field.

This soil is in capability subclass IIw and woodland suitability group 3o7.

Ph—Pheba silt loam. This is a somewhat poorly drained soil on flats on uplands. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The upper part of the subsoil, to a depth of 24 inches, is yellowish brown silt loam that has pale brown and light brownish gray mottles. The next layer, to a depth of 31 inches, is light brownish gray silt loam mottled in shades of brown. The lower part of the subsoil is a fragipan of yellowish, brownish, grayish, and reddish loam to a depth of 70 inches.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow, and water ponds in some areas for short periods. The erosion hazard is slight.

Included with this soil in mapping are small areas of Guyton and Paden soils.

About 75 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is fair for cotton, corn, soybeans, and pasture plants. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. In many years, seedbed preparation is delayed in spring because of wetness. Row arrangement and field ditches are needed to remove excess surface water. This soil is fairly easy to till but crusts and packs when left bare. The addition of crop residue helps prevent crusting and packing.

This soil has good potential for loblolly pine, shortleaf pine, and sweetgum. Wetness is the main limitation to equipment use and management.

Potential is poor for most urban uses because of wetness.

This soil is in capability subclass IIIw and woodland suitability group 2w8.

PkC2—Pikeville sandy loam, 5 to 8 percent slopes, eroded. This is a well drained soil on side slopes and ridges on uplands. In most areas, the surface layer has been thinned by erosion. In a few areas, the subsoil is exposed. Some fields have a few small gullies or rills.

Typically, the surface layer is dark yellowish brown sandy loam about 4 inches thick. The subsoil is yellowish red sandy clay loam and gravelly sandy clay loam to a depth of 52 inches and red gravelly loam to a depth of 70 inches.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is moderate, and the erosion hazard is moderate to severe in cultivated areas.

Included with this soil in mapping are small areas of Ruston and Savannah soils.

About half of the acreage of this soil is cultivated or used for pasture, and about half is woodland.

Potential is fair for cotton, corn, soybeans, and pasture plants. Conservation treatment needed on cropland includes crop residue use, minimum tillage, terraces, and conservation cropping systems.

This soil has fair potential for loblolly pine. There are no significant limitations in managing and harvesting the tree crop.

Potential is good for most urban uses.

This soil is in capability subclass IIIe and woodland suitability group 3o1.

PsD2—Pikeville-Smithdale complex, 8 to 12 percent slopes, eroded. This complex consists of soils on side slopes and some narrow ridgetops. The individual soils exist in an intricate pattern; because this pattern changes in short distances, separate mapping at the scale used was impractical. The degree of erosion varies among mapped areas, but in most areas the surface layer has been thinned by improper cultivation or logging operations. There are a few small gullies and rills in some fields.

Pikeville soils make up about 34 percent of the unit, and Smithdale soils, about 31 percent. Included soils make up the remaining 35 percent. The two dominant soils and one or more of the less extensive soils occur in each mapped area.

The well drained Pikeville soils generally are on the lower and middle parts of slopes. Typically, the surface layer is dark yellowish brown sandy loam about 4 inches thick. The subsoil is yellowish red sandy clay loam and gravelly sandy clay loam to a depth of 52 inches and red gravelly loam to a depth of 70 inches.

Pikeville soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is rapid, and the erosion hazard is severe.

The well drained Smithdale soils generally occur on the upper parts of slopes and on narrow ridgetops in places. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown fine sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam, and it has mottles in shades of brown below a depth of 56 inches.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Included with these soils in mapping are small areas of Savannah soils on ridges, Sweatman soils on side slopes, and Jena and Mantachie soils in narrow alluvial areas.

Most of the acreage of this complex was once cultivated or used for pasture, but most has been allowed to revert to woodland. Areas still clear are mostly in pasture.

Because of the steep slopes, rapid runoff, and severe erosion hazard, these soils have poor potential as cropland. Conservation treatment needed on cropland includes crop residue use, minimum tillage, contour farming, conservation cropping systems, and terraces.

These soils have fair potential for loblolly pine. There are no significant limitations in managing and harvesting the tree crop.

Potential is fair for most urban uses because of slope.

These soils are in capability subclass IVe and woodland suitability group 3o1.

Pt—Pits. This map unit consists of gravel pits, sand pits, and borrow pits in areas of 3 to 200 acres.

Gravel pits are open excavations from which gravel has been mined. The largest are along the terraces and flood plain of the Tombigbee River. These and other gravel pits along the rivers consist mainly of sandy tailings from hydraulic dredging operations and water areas. Other smaller pits are the result of mechanical excavation.

Sand pits are areas from which sand only has been removed.

Borrow pits are areas from which soil and underlying material have been removed for use in construction of roads and as fill in other areas.

Pits require major reclamation before they can be used for cropland or pasture. Pine trees protect the soil against erosion, but they grow slowly because of low fertility in the exposed substratum.

This unit is not assigned to a capability class or woodland group.

PuA—Prentiss loam, 0 to 2 percent slopes. This is a moderately well drained soil on broad flats.

Typically, the surface layer is dark brown loam about 7 inches thick. The upper part of the subsoil, to a depth of 26 inches, is yellowish brown loam. The lower part to a depth of 73 inches is a fragipan of sandy loam and loam mottled in shades of brown, gray, and red.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Cahaba, Savannah, and Steens soils.

About 75 percent of the acreage of this soil is cultivated or used for pasture. The rest is cutover hardwoods and pines.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. Row arrangement and field ditches are needed to remove excess surface water.

This soil has good potential for loblolly pine, shortleaf pine, sweetgum, cherrybark oak, and white oak. There are no significant limitations in managing and harvesting the tree crop.

Potential is fair for most urban uses. Potential is poor, however, for septic tank absorption fields because of wetness and the moderately slow permeability in the fragipan.

This soil is in capability subclass IIw and woodland suitability group 2o7.

PuB—Prentiss loam, 2 to 5 percent slopes. This is a moderately well drained soil on stream terraces.

Typically, the surface layer is dark brown loam about 7 inches thick. The upper part of the subsoil, to a depth of 26 inches, is yellowish brown loam. The lower part to a depth of 73 inches is a fragipan of sandy loam and loam mottled in shades of brown, gray, and red.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow to medium, and the erosion hazard is slight to moderate.

Included with this soil in mapping are small areas of Cahaba and Savannah soils. Also included are small areas where the surface layer has been rilled and thinned by erosion.

About 80 percent of the acreage of this soil is cultivated or used for pasture. The rest is cutover hardwoods and pines.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With good management, row crops can be grown every year. Erosion can be controlled by proper row arrangement, use of supporting grassed waterways, and parallel terracing. The addition of crop residue helps prevent crusting and packing and helps reduce erosion.

This soil has good potential for loblolly pine, shortleaf pine, sweetgum, cherrybark oak, and white oak. There are no significant limitations in managing and harvesting the tree crop.

Potential is fair for most urban uses. Potential is poor, however, for septic tank absorption fields because of wetness and the moderately slow permeability in the fragipan.

This soil is in capability subclass IIe and woodland suitability group 2o7.

Pw—Prentiss-Urban land complex. This complex consists of moderately well drained soils in the city of Columbus and on Columbus Air Force Base. The soils of this complex exist in an intricate pattern with cuts and fills for residential buildings, streets, utilities, and other public facilities. Much of the original soil profile was so extensively altered that soil series are difficult to identify. Areas range from 40 to 250 acres.

This unit is about 45 percent Prentiss loam and about 35 percent Urban land. The remaining 20 percent is included soils.

The moderately well drained Prentiss soils typically have a surface layer of dark brown loam about 7 inches thick. The upper part of the subsoil, to a depth of 26 inches, is yellowish brown loam. The lower part to a depth of 73 inches is a fragipan of sandy loam and loam mottled in shades of brown, gray, and red.

Prentiss soils are strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow to medium, and the erosion hazard is slight or nonexistent.

Urban land is mostly altered, reworked, or fill material that has no identifiable soil profile. These areas are mostly occupied by homesites and the adjoining streets. There are a few shopping centers and other public service areas with paved parking lots.

Included in mapping are small areas of Steens and Rosella soils and areas of soils that are subject to occasional flooding.

This unit was not assigned to a capability subclass. Prentiss soils are in woodland suitability group 2o7. Urban land was not assigned to a woodland suitability group.

Ro—Rosella silt loam. This is a poorly drained soil on broad flats and in depressions. Slopes range from 0 to 2 percent.

Typically, the surface layer is grayish brown silt loam about 10 inches thick. The upper part of the subsoil, to a depth of 22 inches, is grayish brown loam that has yellowish brown mottles and tongues of light gray very fine sand. The middle part, to a depth of 63 inches, is gray loam mottled in shades of brown. The lower part to a depth of 80 inches is light brownish gray loam mottled in shades of brown and red.

This soil is strongly acid or very strongly acid. Permeability is slow, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Kinston, Guyton, and Steens soils.

Most of the acreage of this soil is in hardwood timber. A few cleared areas are used for pasture and hay.

Potential is poor for row crops and fair for pasture plants. Some areas are ponded during winter and spring. The removal of surface water is a concern.

This soil has fair potential for loblolly pine, sweetgum, water oak, and willow oak. Management concerns include severe equipment limitations and severe seedling mortality (fig. 5).

Potential is poor for most urban uses because of wetness and flooding.

This soil is in capability subclass IIIw and woodland suitability group 3w9.

RuC2—Ruston fine sandy loam, 5 to 8 percent slopes, eroded. This is a well drained soil on ridges and side slopes. The surface layer has been thinned by erosion, and there are a few small rills in some areas.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of about 10 inches, is yellowish brown fine sandy loam. The upper part of the subsoil, to a depth of 24 inches, is yellowish red sandy clay loam. The next layer, to a depth of 32 inches, is yellowish red loam that contains pockets of yellowish brown sandy loam. The lower part of the subsoil to a depth of 80 inches is red and yellowish red sandy clay loam and loam.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is medium, and the erosion hazard is moderate in cultivated areas.

Included with this soil in mapping are small areas of Pikeville, Savannah, and Smithdale soils.

Most of the acreage of this soil is woodland or pasture. A small acreage is cultivated.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Cultivated crops that leave large amounts of residue can be grown every year if adequate conservation practices such as crop residue use, terracing, contour farming, or stripcropping are used.

This soil has fair potential for loblolly pine and shortleaf pine. There are no significant limitations in managing and harvesting the tree crop.

Potential is good for most urban uses.

This soil is in capability subclass IIIe and woodland suitability group 3o1.

SaA—Savannah silt loam, 0 to 2 percent slopes. This is a moderately well drained soil on broad flats on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The upper part of the subsoil, to a depth of 21 inches, is yellowish brown and strong brown silt loam. The lower part to a depth of 75 inches is a fragipan of loam. It is yellowish brown between depths of 21 and 58 inches and is mottled in shades of brown, gray, and red below.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Paden and Prentiss soils.

About 80 percent of the acreage of this soil is cultivated or used for pasture. The rest is patches of woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With such management practices as crop residue use and minimum tillage, row crops can be grown every year. In some years, seedbed preparation and tillage are delayed because of wetness. Row arrangement and field ditches are needed in some areas to remove excess surface water.

This soil has fair potential for loblolly pine, shortleaf pine, and southern red oak. There are no significant limitations in managing or harvesting the tree crop.

Potential is fair for most urban uses because of wetness. Potential is poor, however, for septic tank absorption fields because of the moderately slow permeability in the fragipan.

This soil is in capability subclass IIw and woodland suitability group 3o7.

SaB—Savannah silt loam, 2 to 5 percent slopes. This is a moderately well drained soil on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The upper part of the subsoil, to a depth of 21 inches, is yellowish brown and strong brown silt loam. The lower part to a depth of 75 inches is a fragipan of loam. It is yellowish brown between depths of 21 and 58 inches and is mottled in shades of brown, gray, and red below.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow, and the erosion hazard is slight to moderate in cultivated areas.

Included with this soil in mapping are small areas of Caledonia and Paden soils. Also included are small areas of a soil that has a yellowish red subsoil; these soils are adjacent to Caledonia soils in the northeastern part of the county. Small areas where the surface layer has been thinned by erosion are also included.

Most of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. With such management practices as crop residue use, minimum tillage, row arrangement, and grassed waterways, row crops can be grown every year.

This soil has fair potential for loblolly pine, shortleaf pine, and southern red oak. There are no significant limitations in managing or harvesting the tree crop.

Potential is fair for most urban uses because of wetness. Potential is poor, however, for septic tank absorp-

tion fields because of the moderately slow permeability in the fragipan.

This soil is in capability subclass IIe and woodland suitability group 3o7.

SaC2—Savannah silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained soil on uplands. In most areas, the surface layer has been thinned by erosion. In a few areas, the subsoil is exposed, and in a few fields, there are a few small gullies and rills.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The upper part of the subsoil, to a depth of 21 inches, is yellowish brown and strong brown silt loam. The lower part to a depth of 75 inches is a fragipan of loam. It is yellowish brown between depths of 21 and 58 inches and is mottled in shades of brown, gray, and red below.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is moderate, and the erosion hazard is moderate in cultivated areas.

Included with this soil in mapping are small areas of Pikeville and Ruston soils.

About 75 percent of the acreage of this soil is cultivated or used for pasture. The rest is woodland.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Erosion can be controlled with the use of proper cropping systems, minimum tillage, contour farming, and terraces. Cultivated crops that produce large amounts of residue help prevent crusting and packing and help reduce erosion.

This soil has fair potential for loblolly pine (fig. 6), shortleaf pine, and southern red oak. There are no significant limitations in managing or harvesting the tree crop.

Potential is fair for most urban uses because of wetness. Potential is poor, however, for septic tank absorption fields because of the moderately slow permeability in the fragipan.

This soil is in capability subclass IIIe and woodland suitability group 3o7.

Se—Sessum silty clay loam. This is a poorly drained soil on broad flats. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown silty clay loam about 5 inches thick. The upper part of the subsoil, to a depth of 24 inches, is grayish brown clay mottled in shades of brown. The lower part, to a depth of 42 inches, is light brownish gray clay mottled in shades of brown. This is underlain to a depth of 80 inches by clay mottled in shades of gray and brown.

This soil is medium acid to very strongly acid. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds briefly in a few areas during winter and spring. The erosion hazard is slight.

Included with this soil in mapping are small areas of Kipling and Vaiden soils.

About 60 percent of the acreage of this soil is pasture. The rest is woodland.

Potential is poor for most crops and fair for soybeans, sweet potatoes, and pasture plants. Conservation practices needed in cultivated areas include crop residue use, minimum tillage, row arrangement, and control of surface water. This soil can be tilled within only a narrow range of moisture content because of the clayey texture of the surface layer.

This soil has fair potential for loblolly pine, southern red oak, white oak, sweetgum, and eastern redcedar. Clayey texture is the main limitation to woodland use and management.

Potential is poor for most urban uses because of wetness and very high shrink-swell potential. The very slow permeability in the clayey subsoil is a severe limitation for septic tank absorption fields.

This soil is in capability subclass IVw and woodland suitability group 3c8.

SmD—Smithdale fine sandy loam, 8 to 12 percent slopes. This is a well drained soil on side slopes.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown fine sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam. Mottles in shades of brown are in the lower 24 inches.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe in cultivated areas.

Included with this soil in mapping are small areas of Saffell and Sweatman soils. Also included are a few small areas where the surface layer has been rilled and thinned by erosion.

Most of the acreage of this soil was once cultivated or used for pasture, but some has been allowed to revert to woodland.

Because of the strong slopes, rapid runoff, and severe erosion hazard, potential is poor for row crops and fair for pasture plants. Conservation practices needed in cultivated areas include the use of crop residue, minimum tillage, contour farming, and suitable cropping systems.

This soil has fair potential for loblolly pine and shortleaf pine. There are no significant limitations in managing or harvesting the tree crop.

Potential is fair for most urban uses because of slope.

This soil is in capability subclass IVe and woodland suitability group 3o1.

SmF—Smithdale fine sandy loam, 17 to 35 percent slopes. This is a well drained soil on side slopes.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown fine sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam. Mottles in shades of brown are in the lower 24 inches.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Included with this soil in mapping are small areas of Saffell and Sweatman soils. Also included are a few areas of rills and gullies, the result of past logging operations.

Most of the acreage of this soil has remained wooded. Only a few small areas, mostly narrow ridges, have been cultivated. Because of the steep slopes, rapid runoff, and severe erosion hazard, this soil should be kept in permanent vegetation such as pine trees.

This soil has fair potential for loblolly pine and shortleaf pine. There are no significant limitations in managing or harvesting the tree crop.

Potential is poor for most urban uses mostly because of slope.

This soil is in capability subclass VIIe and woodland suitability group 3o1.

SnF—Smithdale-Saffell complex, 15 to 35 percent slopes. This complex consists of well drained soils on side slopes that are dissected by short drainageways and narrow ridgetops. Areas range from about 30 to 150 acres. The individual soils of this complex exist in such an intricate pattern that it was impractical to map each separately at the scale used.

Smithdale soils and closely similar soils make up about 43 percent of the unit, and Saffell soils and closely similar soils, about 30 percent. Included soils make up the remaining 27 percent. The two dominant soils and one or more of the included soils are in each mapped area.

Smithdale soils are generally on the upper parts of slopes and on some narrow ridgetops. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam. Mottles in shades of brown are in the lower 24 inches.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Saffell soils are generally on the lower and middle parts of slopes. Typically, the surface layer is dark brown gravelly sandy loam about 6 inches thick. The subsurface layer is yellowish brown gravelly loam about 6 inches thick. The subsoil, between depths of 12 and 58 inches, is yellowish red gravelly sandy clay loam. This is underlain to a depth of 70 inches by yellowish red gravelly sandy loam.

Saffell soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is low. Runoff is rapid, and the erosion hazard is severe.

Included with these soils in mapping are small areas of Sweatman soils on side slopes, Mantachie soils in narrow alluvial areas, and Savannah soils on ridgetops.

Most of the acreage of these soils is mixed pine and hardwood forest. Because of steep slopes, rapid runoff, and the severe erosion hazard, permanent vegetation should be maintained on these soils.

These soils have fair potential for loblolly pine and shortleaf pine. There are no significant limitations in managing and harvesting the tree crop.

Potential is poor for most urban uses mainly because of slope. Some sites, however, are suitable for dwellings and small buildings.

These soils are in capability subclass VIIe. Smithdale soils are in woodland suitability group 3o1, and Saffell soils are in woodland suitability group 4f2.

SR—Smithdale-Saffell association, hilly. This association consists of well drained soils on rough, wooded uplands. Slopes range from 17 to 35 percent. Areas range from about 200 to 600 acres. The composition of this unit varies among mapped areas, but mapping was controlled well enough for the expected use of the soils.

Smithdale soils and closely similar soils make up about 50 percent of the unit, and Saffell soils and closely similar soils, about 24 percent. Included soils make up the remaining 24 percent.

The well drained Smithdale soils are on uplands. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam. Mottles in shades of brown are in the lower 24 inches.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is very severe in cultivated areas.

The well drained Saffell soils are on uplands. Typically, the surface layer is dark brown gravelly sandy loam about 6 inches thick. The subsurface layer is yellowish brown gravelly loam about 6 inches thick. The subsoil, between depths of 12 and 58 inches, is yellowish red gravelly sandy clay loam. The underlying material to a depth of 70 inches is yellowish red gravelly sandy loam.

Saffell soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is low. Runoff is rapid, and the erosion hazard is very severe where the soil is cultivated.

Included with these soils in mapping are a few areas of the gently sloping and moderately sloping Ruston and Savannah soils on ridgetops as much as 500 feet wide, small areas of Sweatman and Pikeville soils, and small areas of Jena soils on narrow flood plains. Also included are small areas of Smithdale soils in which gravel content in the surface layer is as much as 35 percent.

Most of the acreage of these soils is wooded. Because of steep slopes, rapid runoff, and the severe erosion hazard, permanent vegetation should be maintained on these soils.

The Smithdale soils have fair potential for loblolly and shortleaf pines. There are no significant limitations to woodland use or management. The Saffell soils, however, have poor potential for loblolly and shortleaf pines. The high content of coarse fragments in the Saffell soils limits woodland use and management.

These soils have poor potential for most urban uses mainly because of steepness of slopes. Some sites, however, are suitable for dwellings and small buildings.

These soils are in capability subclass VIIe. Smithdale soils are in woodland suitability group 3o1, and Saffell soils are in woodland suitability group 4f2.

SsF—Smithdale-Sweatman complex, 17 to 35 percent slopes. This complex consists of well drained soils on narrow ridgetops and on side slopes that are dissected by short drainageways. The individual soils of this complex exist in such an intricate pattern that it was impractical to map each separately at the scale used.

Smithdale soils and closely similar soils make up about 45 percent of the unit, and Sweatman soils and closely similar soils make up about 31 percent. Included soils make up the remaining 24 percent. The two dominant soils and at least one of the included soils are in each mapped area.

Smithdale soils generally occur on narrow ridgetops and on the upper parts of side slopes. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown sandy loam about 12 inches thick. The subsoil to a depth of 80 inches is yellowish red clay loam, loam, and sandy loam. Mottles in shades of brown are in the lower 24 inches.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Sweatman soils are generally on side slopes and, in a few places, on narrow ridgetops. Typically, the surface layer is dark brown sandy loam about 7 inches thick. The upper part of the subsoil, to a depth of 26 inches, is reddish brown silty clay. The lower part, to a depth of 55 inches, is red clay loam and loam that has brownish mottles. This is underlain to a depth of 80 inches by olive fine sandy loam that has spots and stratified layers of dark brown material high in content of mica.

Sweatman soils are strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Included with these soils in mapping are small areas of soils that are similar to Smithdale soils but that have a surface layer more than 20 inches thick. These soils are on side slopes. Also included are small areas of Savannah soils on ridges.

Most of the acreage of these soils is in pine and hardwood forest, and some areas are being developed for urban use. Because of steep slopes, rapid runoff, and the severe erosion hazard, these soils should be kept in permanent vegetation.

These soils have fair potential for loblolly pine and shortleaf pine. The clayey subsoil of the Sweatman soils is a moderate limitation to equipment use in managing and harvesting the tree crop.

Potential is poor for most urban uses. Steep slopes are the main limitations. Some sites, however, are suitable for dwellings and small buildings.

These soils are in capability subclass VIIe. Smithdale soils are in woodland suitability group 3o1. and Sweatman soils are in woodland suitability group 3c2.

St—Steens fine sandy loam. This is a somewhat poorly drained soil on broad flats. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is grayish brown and light gray fine sandy loam to a depth of about 15 inches. The upper part of the subsoil, to a depth of 20 inches, is loam mottled in shades of brown and gray. The lower part to a depth of 65 inches is grayish brown and gray loam that has brownish mottles.

This soil is medium acid to very strongly acid. Permeability is moderately slow, and available water capacity is medium. Runoff is slow, and in some years seedbed preparation is delayed in spring by wetness. The erosion hazard is slight.

Included with this soil in mapping are small areas of Guyton and Rosella soils and small areas of soils having slopes of as much as 4 percent.

Most of the acreage of this soil is in woodland or pasture. A small acreage is cultivated.

Potential is fair for corn, soybeans, and grain sorghum and good for pasture plants. With good management, row crops can be grown every year. Row arrangement and field ditches are needed to remove surface water. This soil is fairly easy to till but tends to crust and pack when left bare. The addition of crop residue helps prevent crusting and packing. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has good potential for loblolly pine, sweetgum, and water oak. Wetness is the main limitation in woodland management and in harvesting the tree crop, but this limitation can be partially overcome by using special equipment and by logging during the drier seasons.

Potential is poor for most urban uses because of wetness.

This soil is in capability subclass IIw and woodland suitability group 2w8.

SuB2—Sumter silty clay loam, 2 to 5 percent slopes, eroded. This is a well drained soil on uplands. In most areas, the surface layer has been rilled and thinned by erosion. In a few areas, the plow layer is a mixture of soil and firm fragments of chalk. Shallow gullies and small areas of chalk outcrop are common.

Typically, the surface layer is dark grayish brown silty clay loam about 7 inches thick. The subsoil, to a depth of 34 inches, is light yellowish brown and pale yellow silty clay and clay. This is underlain to a depth of 70 inches by marly silty clay and marly clay mottled in shades of brown, yellow, and gray.

This soil is mildly alkaline to calcareous. Permeability is slow, and available water capacity is medium. Runoff is medium, and the erosion hazard is moderate.

Included with this soil in mapping are small areas of Binnsville, Demopolis, and Okolona soils.

Most of the acreage of this soil is in row crops, pasture, or hay. Some has been allowed to revert to bois d'arc and cedar trees.

Potential is fair for such crops as cotton, soybeans, small grain, and pasture plants. Erosion is a moderate hazard where cultivated crops are grown. The return of crop residue, minimum tillage, terracing, and grassed waterways help reduce erosion where row crops are grown. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has poor potential for eastern redcedar. Depth to weathered bedrock and soil reaction are the main limitations.

Potential is poor for most urban uses because of high shrink-swell potential and low strength.

This soil is in capability subclass IIIe and woodland suitability group 4c2c.

SuC2—Sumter silty clay loam, 5 to 12 percent slopes, eroded. This is a well drained soil on uplands. In most areas, the surface layer has been rilled and thinned by erosion. In a few areas, the plow layer is a mixture of soil and firm fragments of chalk. Shallow gullies and small areas of chalk outcrops are common.

Typically, the surface layer is dark grayish brown silty clay loam about 7 inches thick. The subsoil, to a depth of 34 inches, is light yellowish brown and pale yellow silty clay and clay. This is underlain to a depth of 70 inches by marly silty clay and marly clay mottled in shades of brown, yellow, and gray.

This soil is mildly alkaline to calcareous. Permeability is slow, and available water capacity is medium. Runoff is medium to rapid, and the erosion hazard is moderate to severe.

Included with this soil in mapping are small areas of Binnsville and Demopolis soils.

Most of the acreage of this soil is used for pasture or hay, and a few areas are cultivated. A few areas have been allowed to revert to bois d'arc and cedar trees. Because of rapid runoff and the severe erosion hazard, this soil is best suited to pasture plants. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has poor potential for eastern redcedar. Depth to weathered bedrock and soil reaction are the main limitations.

Potential is poor for most urban uses because of high shrink-swell potential and low strength.

This soil is in capability subclass VIe and woodland suitability group 4c2c.

SvD3—Sumter-Demopolis-Chalk outcrop complex, 5 to 20 percent slopes, severely eroded. This complex consists of chalk outcrops and well drained, sloping to steep upland soils in the Blackland Prairies. Areas range from 5 to 70 acres. The individual soils of this complex exist in an intricate pattern which changes over a short distance, so separate mapping at the scale used was impractical.

Chalk outcrop and gullies make up about 55 percent of this complex, Sumter soils make up about 20 percent, and Demopolis soils make up about 15 percent. The remainder of the unit is included soils. Chalk outcrop, the dominant soils, and at least one of the included soils occur in most mapped areas. In some areas, an intricate pattern of gullies makes up as much as half of the acreage (fig. 7).

The well drained Sumter soils are on uplands. Typically, the surface layer is dark grayish brown silty clay loam about 7 inches thick. The subsoil, to a depth of 34 inches, is light yellowish brown and pale yellow silty clay and clay. This is underlain to a depth of 70 inches by marly silty clay and marly clay mottled in shades of brown, yellow, and gray.

Sumter soils are mildly alkaline to calcareous. Permeability is slow, and available water capacity is medium. Runoff is medium to very rapid, and the erosion hazard is severe.

The well drained Demopolis soils are on uplands. Typically, the surface layer is dark grayish brown silty clay loam about 7 inches thick. This is underlain by weakly consolidated fragments of chalk to a depth of about 12 inches and by light gray chalk to a depth of 40 inches or more.

Demopolis soils are mildly alkaline to calcareous. Infiltration is slow and permeability is very slow in the firm chalk. Available water capacity is medium in the surface layer and low in the firm chalk. Runoff is medium to very rapid, and the erosion hazard is severe.

Chalk outcrop consists of soils so severely damaged by erosion that reclamation for row crops and pasture is not economical. Most of the surface layer and much of the subsoil have been eroded away. Many gullies in which chalk is exposed cannot be crossed with farm machinery. These areas support a very sparse cover of cedar trees and scrub hardwoods.

Because of the rapid runoff and severe erosion hazard, these areas need to be kept in permanent vegetation. Pasture plants or cedar trees are best suited to these areas because of the alkaline subsoil and the chalk. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

These soils have poor potential as woodland. Depth to bedrock and soil reaction are the main limitations.

Potential is poor for most urban uses because of low strength and the high shrink-swell potential of Sumter soils and the shallow depth over bedrock in Demopolis soils.

These soils are in capability subclass VIIe and woodland suitability group 4c3c.

Ts—Tuscumbia silty clay. This is a poorly drained soil on flood plains. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark grayish brown silty clay about 6 inches thick. The subsoil to a depth of 62 inches is gray silty clay mottled in shades of brown, gray, and yellow.

This soil is medium acid to mildly alkaline. Permeability is very slow, and available water capacity is high. The soil shrinks and cracks during dry periods. Runoff is slow, and water ponds for long periods in some years. The erosion hazard is slight.

Included with this soil in mapping are small areas of Catalpa and Leeper soils.

About half of the acreage of this soil is in row crops and pasture, and about half is in hardwood trees.

Potential is fair for soybeans, corn, and pasture plants, but high yields can be obtained. When crops are grown, such management practices as returning crop residue to the soil, row arrangement, and field ditches to remove excess surface water are needed. This soil is flooded occasionally for long periods. This flooding damages crops. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has good potential for eastern cottonwood, green ash, and sweetgum. Wetness is the main limitation in woodland management and in harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during drier periods.

Potential is poor for most urban uses because of flooding and very high shrink-swell potential.

This soil is in capability subclass IIIw and woodland suitability group 2w6.

Ur—Urban land. Most of the acreage of this map unit is in the city of Columbus, and a smaller acreage is on Columbus Air Force Base. This land is mostly altered or reworked soil material. It has been so obscured by urban works that no soil profile can be identified in most areas. These areas are mostly occupied by homesites, by shopping centers and other public service areas with paved parking lots, and by the adjoining streets.

This unit is not assigned to a capability class or woodland group.

VaA—Valden silty clay, 0 to 2 percent slopes. This is a somewhat poorly drained soil on uplands.

Typically, the surface layer is dark brown silty clay about 5 inches thick. The upper part of the subsoil, to a depth of about 12 inches, is yellowish brown clay mottled in shades of red and gray. The lower part, to a depth of 23 inches, is clay mottled in shades of brown, gray, and red. This is underlain to a depth of 39 inches by clay mottled in shades of gray and brown, to a depth of 60 inches by light olive brown clay mottled in shades of gray and brown, and to a depth of 76 inches by clay mottled in shades of gray, brown, and olive.

This soil is strongly acid or very strongly acid in the upper part of the subsoil and medium acid to mildly alkaline in the lower part. Permeability is very slow, and available water capacity is medium. The soil shrinks and cracks during dry periods. Runoff is slow, and the erosion hazard is slight in cultivated areas.

Included with this soil in mapping are small areas of Brooksville, Kipling, and Sumter soils. Also included are small areas of soils in which the surface layer has been thinned by sheet erosion and a few small areas in which the surface layer has been rilled.

Most of the acreage of this soil is used for row crops and pasture. The rest is scattered patches of woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. Control of surface water is a concern, and spring plowing is delayed in some places because of wetness. Where crops are grown, such management practices as row arrangement and field ditches are needed to remove excess surface water. Soil tilth can be improved by plowing late in fall and by adding crop residue to the soil. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has fair potential for loblolly pine, shortleaf pine, eastern redcedar, and southern red oak. Wetness, clayey texture, and soil reaction are the main limitations in woodland management and in harvesting the tree crop.

Potential is poor for most urban uses because of very high shrink-swell potential and low strength.

This soil is in capability subclass IIIw and woodland suitability group 3c8.

VaB2—Valden silty clay, 2 to 5 percent slopes, eroded. This is a somewhat poorly drained soil on uplands. In some places, the surface layer has been thinned by sheet erosion, and in a few areas, the soil has been rilled.

Typically, the surface layer is dark brown silty clay about 5 inches thick. The upper part of the subsoil, to a depth of about 12 inches, is yellowish brown clay mottled in shades of red and gray. The lower part, to a depth of 23 inches, is clay mottled in shades of brown, gray, and red. This is underlain to a depth of 39 inches by clay mottled in shades of gray and brown, to a depth of 60 inches by light olive brown clay mottled in shades of gray and brown, and to a depth of 76 inches by clay mottled in shades of gray, brown, and olive.

This soil is strongly acid or very strongly acid in the upper part of the subsoil and medium acid to mildly alkaline in the lower part. Permeability is very slow, and available water capacity is medium. The soil shrinks and cracks during dry periods. Runoff is slow to medium, and the erosion hazard is moderate.

Included with this soil in mapping are small areas of Brooksville and Kipling soils.

Most of the acreage of this soil is used for row crops and pasture. The rest is scattered patches of woodland.

Potential is good for cotton, corn, soybeans, small grain, and pasture plants. Where crops are grown, such management practices as plowing on the contour, use of grassed waterways, stripcropping, and parallel terracing help reduce erosion. The addition of crop residue helps prevent crusting and packing and helps reduce erosion. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has fair potential for loblolly pine, shortleaf pine, eastern redcedar, and southern red oak. Wetness, clayey texture, and soil reaction are the main limitations in woodland management and in harvesting the tree crop.

Potential is poor for most urban uses because of very high shrink-swell potential and low strength.

This soil is in capability subclass IIIe and woodland suitability group 3c8.

VaC2—Vaiden silty clay, 5 to 8 percent slopes, eroded. This is a somewhat poorly drained soil on uplands. In some places, the surface layer has been thinned by sheet erosion, and in a few areas, the soil has been rilled.

Typically, the surface layer is dark brown silty clay about 5 inches thick. The upper part of the subsoil, to a depth of about 12 inches, is yellowish brown clay mottled in shades of red and gray. The lower part, to a depth of 23 inches, is clay mottled in shades of brown, gray, and red. This is underlain to a depth of 39 inches by clay mottled in shades of gray and brown, to a depth of 60 inches by light olive brown clay mottled in shades of gray and brown, and to a depth of 76 inches by clay mottled in shades of gray, brown, and olive.

This soil is strongly acid or very strongly acid in the upper part of the subsoil and medium acid to mildly alkaline in the lower part. Permeability is very slow, and available water capacity is medium. The soil shrinks and cracks during dry periods. Runoff is medium, and the erosion hazard is moderate to severe in cultivated areas.

Included with this soil in mapping are small areas of Binnsville and Demopolis soils and small areas of soils in which clay content in the upper part of the subsoil is less than 60 percent.

Most of the acreage of this soil is used for pasture. A few small areas are cultivated, and the rest is woodland.

Potential is fair for cotton, corn, soybeans, small grain, and pasture plants. Such management practices as plowing on the contour, use of grassed waterways, stripcropping, and parallel terracing help reduce erosion. The addition of crop residue helps prevent crusting and packing and helps reduce erosion. Good management for pasture includes proper stocking, controlled grazing, and weed and brush control.

This soil has fair potential for loblolly pine, shortleaf pine, eastern redcedar, and southern red oak. Wetness, clayey texture, and soil reaction are the main limitations in woodland management and in harvesting the tree crop.

Potential is poor for most urban uses because of very high shrink-swell potential and low strength.

This soil is in capability subclass IVe and woodland suitability group 3c8.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland, and woodland; as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements,

sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the predicted yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms, should also consider the detailed information given in the description of each soil.

Soil erosion is the major concern on about one-third of the cropland and pasture in Lowndes County. If slope is more than 2 percent, erosion is a hazard. Cahaba, Caledonia, and Savannah soils, for example, have slopes of 2 to 5 percent and are also wet.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Brooksville, Okolona, and Vaiden soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone. Such layers include a fragipan, as in Paden, Prentiss, and Savannah soils, or bedrock, as in Binnsville, Demopolis, and Sumter soils. Erosion also reduces productivity on soils that tend to be droughty, such as Latonia soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, tilling or preparing a good seedbed is difficult on clayey or hardpan spots because the original friable surface soil has been eroded away. Such spots are common in areas of moderately eroded Kipling and Savannah soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the following crop.

Slopes are so short and irregular that contour tillage or terracing is not practical in most areas of the sloping Cahaba, Caledonia, Kipling, Sumter, and Vaiden soils. On these soils, a cropping system that provides substantial plant cover is required to control erosion unless minimum tillage is practiced. Minimizing tillage and leaving crop residue on the surface help increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area, but they are more difficult to use successfully on the eroded soils and on the soils that have a clayey surface layer, such as Kipling, Sumter, and Vaiden soils. No-till farming for corn is common on an increasing acreage. This practice is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area. It is more difficult to practice successfully, however, on the soils that have a clayey surface layer.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are not practical on deep, well drained soils that have regular slopes. Caledonia soils and in places Ruston soils are suitable for terraces. The other soils are less suitable for terraces and diversions because of irregular slopes, excessive wetness in the terrace channels, a clayey subsoil which would be exposed in terrace channels, or bedrock at a depth of less than 40 inches.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Using soils for cultivated crops reduces organic matter content, removes plant nutrients, increases compaction of the soil and crusting of the surface layer, and increases erosion. Cropping management systems are therefore needed to maintain an acceptable level of organic matter content, maintain or increase soil fertility, and control erosion.

Consideration should be given to use of cropping management systems that include the use of crop rotation, return of crop residue to the land, and the use of fertilizers and agricultural lime as needed. Such management systems should also include the use of such erosion control measures as contouring, establishing vegetated waterways, maintaining strips of vegetation around the edges of fields, terracing or contour stripcropping, and keeping tillage to a minimum. The use of erosion control measures is determined by the severity of the erosion problem depending on soil type and length and gradient of slope.

Crop residue should be shredded after harvest and left on the soil surface until time to prepare the land for the next crop. Where land is subject to flooding, the residue should be left standing. The need for fertilizer varies with different soils and crops. Soil tests are very helpful in

determining the correct amount and kind of fertilizer to use.

Additional information on crop production and management is available from the Mississippi Extension Service and the State experiment stations. On such soils as Guyton and Steens, surface and internal drainage is a concern. Drainage mains and laterals with field ditches are needed. Diversions are needed in places to protect bottom lands from receiving excess water from adjacent higher areas.

On such gently sloping soils as Savannah silt loam, 2 to 5 percent slopes, contour cultivation with terraces or stripcropping and proper use of crop residue may be needed to control soil erosion. On steeper soils where erosion is severe—for example, Smithdale fine sandy loam, 8 to 12 percent slopes,—the use of minimum tillage or no tillage together with proper use of residue is needed if the land is to remain in row crops. Very steep, severely eroded land should be used as pasture or woodland.

Soils used for pasture should be established to a combination of adapted perennial grasses and legumes for production of high quality forage. There are a number of perennial grasses suited to different soils, for, example, common bermudagrass, bahiagrass, coastal bermudagrass, dallisgrass, and tall fescue. Well suited legumes are white clover, crimson clover, black medic, wild winter peas, annual lespedeza, and sericea lespedeza.

Certain grasses and legumes are better suited to some soils than to others. Contact the office of the local Soil Conservation District for detailed information about pasture plants best suited to the soils on your farm.

The production of quality forage involves more than planting the correct plants. All forage plants, like other crops, require certain management practices for best results. Regular application of needed fertilizer and lime are profitable and needed for quality forage production.

The amount and kind of fertilizer should be determined by soil test. Grazing should be regulated by stocking at a rate that will maintain a 3- to 5-inch topgrowth during the growing season. Rotation grazing provides a rest period of 3 to 5 weeks to allow the plants to make sufficient topgrowth to develop and maintain a better root system. This helps to maintain a good, dense sod on the land.

The forage production system should provide forage the year round, or as long as possible. This can be done by use of winter perennial grass such as tall fescue and also by use of winter legumes in the summer pasture. In addition, annual plants such as small grain or ryegrass can be planted as temporary pasture or seeded in the perennial grass sod.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 6.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of

groups of soils for forest trees or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. Only the levels class and subclass were used in this soil survey. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows (*8*):

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 7. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability subclass is identified in the description of each soil map unit in the section "Soil maps for detailed planning."

Woodland management and productivity

Table 8 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Mapping unit symbols for soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third element in the symbol, a numeral, indicates the kind of trees for which the soils in the group are best suited and also indicates the severity of the hazard or limitation. The numerals 1, 2, and 3 indicate slight, moderate, and severe limitations, respectively, and suitability for needleleaf trees. The numerals 4, 5, and 6 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees. The numerals 7, 8, and 9 indicate slight, moderate, and severe limitations, respectively, and suitability for both needleleaf and broadleaf trees.

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in manage-

ment or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Common trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Use of the soils as woodland

Joseph V. Zary, forester, Soil Conservation Service, prepared this section.

This section contains information about the relationship between trees and their environment, particularly between trees and the soils on which they grow. It also includes information about the kind, amount, and condition of woodland resources in Lowndes County.

Although production of high-quality sawtimber may be the ultimate management objective of the woodland owner, other products, for example posts, pulpwood, poles, veneer bolts, and fuelwood are usually removed in interim thinnings and other cutting operations. Such products not only provide the owner with periodic income, but the cutting practices reduce crowding, stimulate growth of the remaining trees, and improve the species composition and overall quality of the remaining stands. Such practices, planned and carried out carefully and regularly, assure the owner of continuous tree crops. This principle of growing continuous crops of trees without impairing the productive capacity of the land is known as "sustained yield."

The continuous production of tree crops does not preclude other forest-related uses. Under the "multiple use" concept, carefully managed woodlands can produce forage for domestic livestock and food and cover for wildlife; afford opportunities for outdoor recreation; and provide goods for the public.

Trees and their environment

The total environment of the tree is a complex integration of numerous interrelated physical and biological factors (*9*). Physical factors include those of climate, such as various measures of radiation, of precipitation, and of movement and composition of the air. They also include such factors as texture, structure, and depth; moisture capacity and drainage; nutrient content; and topographic position of the soil. Biological factors are the plant associates; the larger animals that use the forest as a source of food and shelter; the many small animals, insects, and insectlike animals; the fungi to which the trees are hosts, especially the beneficial mycorrhizal fungi which assist the trees in uptake of nutrients (*17*); and the myriad of other micro-organisms in the soil, the functions of many of which are beneficial to the tree.

Tree and soil relationships

Possibly the most important environmental factor influencing tree growth and woodland species composition is soil. In addition to being the medium in which the tree is anchored and a reservoir for moisture for a tree, soil provides all of the essential elements required in growth except those derived from the atmosphere—carbon from carbon dioxide and oxygen and radiant energy from the sun. The many characteristics of soil, such as chemical composition, texture, structure, depth, and position, affect the growth of a tree to the extent to which they affect the supply of moisture and nutrients.

A number of studies have shown strong correlations between productivity of site, or growth of trees, and various soil characteristics, such as depth and position on the slope. The relationships are often indirect. The ability of a soil to supply water and nutrients to trees is strongly related to its texture, structure, and depth. Sands contain only a small amount of plant nutrients and are low in available water capacity. Many fine textured soils, the clays, are high in plant nutrients and have high available water capacity. Aeration is impeded in clays, however, particularly under wet conditions; metabolic processes requiring oxygen in the roots are therefore inhibited. The position on the slope strongly influences species composition as well as growth. Moisture-loving species such as sweetgum and yellow-poplar thrive on moderately moist, well drained, loose textured soils on the lower to middle parts of slopes, in coves, and in areas adjoining streams, whereas less demanding species such as oak, hickory, and pines grow well on the

middle parts of slopes and moderately well on the upper parts of slopes and on ridges. Silvicultural practices that help to prevent the destruction of organic matter and the compaction of soil are important in maintaining suitable conditions of soil moisture and aeration. Such practices as sanitation and salvage cuttings to remove trees killed or injured by fire, insects, and fungi; improvement cuttings to improve species composition and stand condition; and thinnings to reduce competition, increase growth rate, improve composition, and foster quality, all result in long-term increases in total yield and income and exert beneficial influences on woodland soils and the environment.

Woodland resources

About 130,000 acres, or 40 percent of the total land area of Lowndes County, is classified as commercial forest land (*12*). Commercial forest land is defined as land that is producing or is capable of producing crops of industrial wood and that has not been withdrawn from timber utilization. Most of the commercial forest land in Lowndes County is privately owned (*13*).

According to the 1967 Conservation Needs Inventory for Mississippi, only about one-fifth of the commercial forest land was considered to have "adequate treatment." The rest needed further conservation treatment. The woodland throughout the county is generally receiving low to medium levels of management and is producing far less than its potential. Establishment of needed practices could nearly double yields, increase the owner's income, and enhance environmental values.

The commercial forest land can be subdivided into forest types, which are stands of trees of similar character, composed of the same species, and growing under the same ecological and biological conditions. These forest types are named for the species which are present in the greatest abundance and frequency (*7*).

On this basis, the oak-gum-cypress forest type, composed mainly of tupelo, blackgum, sweetgum, various oaks, and baldcypress, is most important. It occupies about 60,000 acres on the flood plains of the Tombigbee and Buttahatchee Rivers and Luxapalila, Cooper, Tibbee, Yellow, Magowah, and Cedar Creeks. Common associates include red and silver maples, ash, willow, cottonwood, elm, hackberry, and a few loblolly pines (*11*). This forest type is commonly referred to as bottom land hardwood. The land is subject to periodic flooding. Swamps, bayous, and oxbow lakes are typical water features. Areas occupied by this forest type may have certain unique and botanical values. Consideration should be given to preserving such areas as relicts of swamp and bottom land hardwoods. Many such areas have already been destroyed, and the adjoining lands have been cleared for use as cropland. Much of the remaining land presently occupied by bottom land hardwoods is included in the Tennessee-Tombigbee Waterways Project. This land will be cleared to accomodate the channels, locks, and impoundments planned for this project.

The oak-pine forest type is second in importance, occupying about 35,000 acres. It occurs on uplands in the eastern third of the county. It is between the Buttahatchee River and Luxapalila Creek and between the Tombigbee River and the eastern boundary of the county. This forest type is made up of upland hardwoods, including several species of oak and hickory in mixtures with almost equal numbers of loblolly and shortleaf pines. Common associates include blackgum, sweetgum, and yellow-poplar.

The oak-hickory forest type is third in importance. It occupies about 25,000 acres mainly in the southwestern quarter of the county but is also in small areas in the north-central and east-central parts of the county. This forest type is made up of upland oak and hickory. Common associates include yellow-poplar, red maple, elm, and a few black walnuts. There are also a few loblolly and shortleaf pines, singly or in small groups.

The loblolly-shortleaf pine forest type is fourth in importance. This forest type is composed of loblolly pine or shortleaf pine, singly or in combination (fig. 8). It occupies about 10,000 acres and is intermixed with the oak-pine and oak-hickory forest types. Common associates include various species of oak and hickory, blackgum, and sweetgum. About 4,220 acres of pine plantations, mainly loblolly pine, were established in Lowndes County between 1957 and 1977. These plantations are on lands owned by forest industries, farmers, and other private owners. The acreage of such plantations is included in the loblolly-shortleaf pine forest type, but these plantations are classified as "pure loblolly pine."

For the most part, the four forest types in Lowndes County are in well-defined bodies and can be described in terms of geographic location, elevation, and physical or topographic features. In some cases, however, the types are so intermingled that it is difficult to delineate them clearly. For instance, the oak-pine forest type and the oak-hickory forest type are intermingled in places with the oak-gum-cypress forest type along their boundaries. The change from one forest type to another may be very gradual and subtle.

The trees in Lowndes County are harvested for sawtimber (*14, 16*) and pulpwood (*5*) and for use in other wood-using industries in and near Lowndes County. In addition, the commercial forest land of Lowndes County provides food and shelter for wildlife and offers the opportunity for sport and recreation to many users. This forest land also provides watershed protection, helps to arrest soil erosion and reduce sedimentation, enhances the quality and value of water resources, and furnishes a limited amount of native forage for livestock. The social, economic, and environmental benefits now accruing to Lowndes County and its residents could be greatly enhanced through intensified management of the county's forest resources.

Engineering

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 9 shows, for each kind of soil, the degree and kind of limitations for building site development; table 10, for sanitary facilities; and table 12, for water management. Table 11 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 9. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or

extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 9 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 9 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Lawns and landscaping require soils that are suitable for the establishment and maintenance of turf for lawns and ornamental trees and shrubs for landscaping. The best soils are firm after rains, are not dusty when dry, and absorb water readily and hold sufficient moisture for plant growth. The surface layer should be free of stones. If shaping is required, the soils should be thick enough over bedrock or hardpan to allow for necessary grading. In rating the soils, the availability of water for sprinkling is assumed.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 10 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoon areas are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high,

seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 10 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to wind erosion.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 11 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 15 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 11 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 15.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 12 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 12 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation uses (fig. 9). The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that

the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 13 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 10, and interpretations for dwellings without basements and for local roads and streets, given in table 9.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They should have a surface that is free of stones and boulders and have moderate slopes. Suitability of the soil for traps, tees, or greens was not considered in rating the soils. Irrigation is an assumed management practice.

Wildlife habitat

Of all the factors that affect wildlife populations, the way man uses the land is the most important. No matter how well suited a soil is for producing wildlife habitat, if the present land use eliminates the plant associations which that soil is capable of producing for wildlife habitat, the animals will not live there. For this reason, the kinds and numbers of wild animals in Lowndes County have varied since the area was settled.

Before Lowndes County was settled, the area was mostly forest; upland hardwoods dominated the hills, and bottom land hardwood forests dominated the flood plains. Animals adapted to forests were abundant. These animals included squirrels, deer, turkeys, bobcats, wolves, eagles, and many kinds of birds, including the now-extinct passenger pigeon. The streams probably ran clear except after heavy rains and supported a wide variety of adapted fish.

As the area was settled, logging and land clearing for farming altered animal populations. Animals adapted to woodland were pushed back as clearing occurred, but species adapted to open and semi-open land flourished. Clearing fields, logging, burning, and other soil disturbances created vegetative patterns perfect for bobwhite quail, rabbits, doves, many types of ground- and brush-inhabiting birds, rodents, and reptiles. Land clearing, particularly in steeper areas, resulted in erosion that filled many of the streams with silt and sand and affected the kind and number of fish the streams were able to support.

The farming methods of the early settlers were responsible for some of the highest populations of bobwhite quail and cottontail rabbit anywhere in the country. As more land was cleared, however, the numbers of forest animals further declined. Wolves, panthers, and bears were eliminated from the area. Deer and turkeys almost disappeared. Agricultural and industrial demands and methods continued to change. After World War II, reforestation and wildlife management efforts began. With restocking and management, deer and turkeys have been restored to the county. More intensive farming methods have caused some decline in the numbers of farm and openland wild animals. Kinds and numbers of wild animals will continue to change as man's demands on the land change.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples are corn, sorghum, wheat, oats, barley, millet, buckwheat, cowpeas, soybeans, and sunflowers.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples are fescue, bluegrass, lovegrass, switchgrass, bromegrass, timothy, orchardgrass, clover, alfalfa, trefoil, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples are bluestem, indiangrass, goldenrod, beggarweed, pokeweed, partridgepea, and fescue.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, persimmon, sassafras, sumac, hickory, hazelnut, black walnut, blackberry, grape, blackhaw, viburnum, blueberry, bayberry, and briers. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples are pine, yew, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, or foliage used by wildlife or that provide cover and shade for some species of wildlife. Major soil properties that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and moisture. Examples are deciduous holly and huckleberry.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples are smartweed, wild millet, rushes, sedges, reeds, wildrice, and cattail.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Examples of wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, and woodchuck.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses,

legumes, and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, woodcock, thrushes, vireos, woodpeckers, tree squirrels, gray fox, raccoon, and deer.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Examples of wildlife attracted to this habitat are ducks, geese, herons, shore birds, kingfishers, muskrat, mink, and beaver.

Rangeland habitat consists of areas of wild herbaceous plants and shrubs. Lowndes County does not support habitat suitable for rangeland wildlife.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 15 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 15 gives information for each of these contrasting horizons in a typical profile.

Depth to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 15 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested in the survey area, with group index numbers in parentheses, is given in table 20. The estimated classification, without group index numbers, is given in table 15. Also in table 15 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume

percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Ranges in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 16 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Clay is a mineral soil particle that is less than 0.002 millimeters in diameter. In table 16 the estimated clay content of each major soil horizon is given as a percent, by weight, of the soil material that is less than 2 millimeters in diameter. The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to absorb cations and to retain moisture. They influence the soil's shrink-swell potential, permeability, and plasticity; the ease of soil dispersion; and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (oven dry) per unit volume. Volume is measured when the soil is at the field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In table 16 the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter for soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and root penetration. Moist bulk density is influenced by the texture, kind of clay, content of organic matter, and structure of the soil.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16 the estimated content of organic matter of the plow layer is expressed as a percent, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth of the soil. It is a source of nitrogen and other nutrients for crops.

Soil and water features

Table 17 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils. The kind of bedrock and its hardness as related to ease of excavation is also shown. Rippable bedrock can be excavated with a single-tooth ripping attachment on a 200-horsepower tractor, but hard bedrock generally requires blasting.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Chemical analyses of selected soils

D.E. Pettry, agronomist, Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Mississippi State, Mississippi prepared this section.

Soil chemical properties in combination with other soil features, such as permeability, structure, texture, and consistence, influence the limitations and potentials of any soil. Chemical properties are not evident in visual observations of a soil; laboratory analyses are necessary to define the characteristics. The amount and type of clay minerals present and the organic matter content largely regulate the chemical nature of soils. These substances have the capacity to attract and hold cations. Exchangeable cations are elements that have a positive charge and that are bonded to clay minerals and organic matter that have a negative charge. Laboratory data for representative soils are presented in table 18. These data are useful in classifying the soils properly and managing them effectively.

The analyses were made in the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station. Standard methods were used to analyze the soils (*10*). Representative soil samples were collected from pits at different locations in Lowndes County. Samples were prepared by airdrying, careful crushing, and screening through a standard 20-mesh sieve.

Soil reaction (pH) was determined with a Coleman pH meter using a glass electrode and a 1:1 ratio of soil and water.

Exchangeable bases were extracted with neutral-normal ammonium acetate. Calcium, magnesium, potassium, and sodium were determined with a Perkins-Elmer atomic absorption instrument using strontium chloride to suppress interference. Extractable acidity (hydrogen aluminum) was extracted with a barium chloride triethanolamine solution buffered to pH 8.2 and determined via back titration with standard hydrochloric acid.

Percentage base saturation is the percentage that extractable bases comprise of the cation-exchange capacity, by the summation of the cations.

Soil chemical data are expressed as milliequivalents per 100 grams of dry soil. It is useful to convert milliequivalents per 100 grams of the various cations to the common units of pounds per acre for the plow layer. The plow layer, or topsoil, of an acre of an average soil to a depth of 6.67 inches weighs about 2 million pounds. The conversions for the cations listed in table 18 are as follows:

Calcium meq/100 grams x 400 = pounds per acre.
Magnesium meq/100 grams x 240 = pounds per acre.
Potassium meq/100 grams x 780 = pounds per acre.
Sodium meq/100 grams x 460 = pounds per acre.
Hydrogen meq/100 grams x 20 = pounds per acre.
Aluminum meq/100 grams x 180 = pounds per acre.

The exchangeable cations can be removed or exchanged through leaching or plant uptake. It is through this mechanism of cation exchange that soil acidity can be corrected by liming. It is useful to note that 1 milliequivalent per 100 grams of extractable acidity (hydrogen aluminum) requires 1,000 pounds of calcium carbonate lime per acre to neutralize it.

The Tombigbee River separates the basic soils that formed in calcareous chalk materials from the more acid soils that formed in unconsolidated, siliceous materials. Generally, soils west of the river are in the Black Prairie belt. They tend to be less acid and contain higher levels of calcium than soils in the eastern part of the county. The soils of the Black Prairie belt have higher cation-exchange capacities because they have a higher content of montmorillonitic clay. Cation-exchange capacities of Sumter soils and the associated Okolona and Brooksville soils range from 20 to 50 milliequivalents per 100 grams of soil. Small nodules and fragments of free calcium carbonate may be present when soil pH exceeds 7.2.

Calcium is the principal basic exchangeable cation in the soils of the Black Prairie belt, and it tends to increase with depth. Magnesium content in the soils of the Black Prairie belt is relatively low, and crop response to addition of magnesium is common. The low levels of magnesium in these soils is related to the low content of magnesium minerals in the chalk parent materials and to intensive weathering. Levels of exchangeable sodium and potassium are low in these soils. These levels seldom exceed 0.5 milliequivalent per 100 grams of soil in the plant root zone.

The level soils of the flood plains and terraces along the Tombigbee River and Luxapalila Creek and their tributaries reflect the nature of their alluvial parent materials. The Jena and Mantachie soils adjacent to the Luxapalila River are acid and siliceous, much as the upland soils of the drainage basin. The moderately alkaline Leeper and Catalpa soils along Catalpa, Gilmer, and Magowah Creeks in the southwestern part of the county are associated with the alkaline, clayey alluvium of the Black Prairie belt.

The chemical properties of soils east of the Tombigbee River are variable because of differences in parent materials, textures, and mineralogy. The deep, well drained Caledonia soils northeast of Columbus in the vicinity of Caledonia have base saturation levels of more than 35 percent, whereas adjacent Paden and Savannah soils have much lower levels of exchangeable bases.

Depressional areas of Rosella and Guyton soils on the upland terraces east of the Tombigbee River contain relatively high levels of exchangeable sodium. Sodium content increases with depth and approaches levels deep in the subsoil that could be detrimental to plant growth. The higher sodium content in these soils also tends to increase the hazard of corrosion to steel and concrete.

Physical analyses of selected soils

D.E. Pettry, agronomist, Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Mississippi State, Mississippi prepared this section.

The particle size analyses shown in table 19 were obtained using Day's hydrometer method (*3*). Forty grams of soil were dispersed in 0.5 percent Calgon solution (sodium phosphate) by mixing 5 minutes in a milk shaker. The dispersed soil was transferred to a sedimentation cylinder, made to 1,000 milliliters, and equilibrated overnight in a water bath at 30 degrees C. The suspension was then mixed and allowed to settle. Hydrometer readings were taken at predetermined times to determine the clay content. The sand was separated on a 325-mesh sieve, dried, and weighed. All results are expressed on the basis of oven-dry weight at 110 degrees C.

The physical properties of soils, such as water infiltration and conduction, shrink-swell potential, crusting, ease of tillage, consistence, and available water capacity, are closely related to soil texture (the percentage of sand, silt, and clay).

The deep, sloping, loamy soils on the tops and sides of ridges in the northern part of Columbus and the eastern part of the county have relatively high sand content. Examples are Smithdale and Pikeville soils. The coarse textured surface layers enhance rapid water infiltration and tend to be droughty. Pikeville soils have higher gravel content below a depth of 30 inches, and this affects available water capacity and physical properties. The associated Sweatman soils on the ridges in the northern part of Columbus have higher clay content and lower water infiltration capacity.

The siliceous alluvium of the Tombigbee River and Luxapalila Creek and their tributaries give rise to sandy soils on the level flood plains and stream terraces. Jena, Nugent, and Latonia soils are deep and sandy and have rapid infiltration and low available water capacity. These soils tend to be quite droughty during prolonged dry spells.

Caledonia and Paden soils on the higher terraces near Caledonia have appreciable silt content in the surface layer. These soils, which have silty surface layers, have a tendency to pack, and a crust tends to form on the surface in intensively cultivated areas. This may hinder plant emergence. A crust also tends to form on the surface of the associated Savannah and Prentiss soils, which contain a hard, dense fragipan in the upper 40 inches.

The soils of the Blackland Prairie are generally more clayey than soils east of the Tombigbee River. Prairie soils such as Okolona and Brooksville have high content of montmorillonite clay. These clayey soils shrink and swell upon drying and wetting. They have high available water capacity, but they are very expansive and sticky. The plastic nature of these clayey soils requires special management practices and larger types of cultivation equipment.

Engineering test data

Table 20 contains engineering test data for two pedons of the Vaiden series. These tests were made to help evaluate the soils for engineering purposes. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid and plastic limits. The mechanical analyses were made by combined sieve and hydrometer methods.

Moisture-density (compaction) data are important in earthwork. If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, density decreases with increase in moisture content. The highest dry density obtained in the compactive test is termed "maximum dry density." As a rule, maximum strength of earthwork is obtained if the soil is compacted to the maximum dry density.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from the semisolid to the plastic state; the liquid limit is the moisture content at which the soil changes from the plastic to the liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*6*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Annemaine series

The Annemaine series consists of moderately well drained soils that formed in clayey and loamy material. Slopes range from 0 to 2 percent.

Annemaine soils are associated with Cahaba and Columbus soils. Annemaine soils have a finer textured B horizon than Cahaba and Columbus soils. They also have gray mottles in the lower part of the B horizon, and Cahaba soils do not. They have a redder B horizon than Columbus soils.

Typical pedon of Annemaine loam, in a 30-acre area of pasture about 2 miles west of Columbus, 1.5 miles west of Plymouth Church, 300 yards north of gravel road, 120 feet north of corner of field, NW1/4NW1/4 sec. 18, T. 18 S., R. 18 W.

Ap—0 to 5 inches; dark brown (10YR 4/3) loam; weak fine granular structure; friable; common fine roots; few fine brown and black concretions; strongly acid; clear smooth boundary.

B21t—5 to 19 inches; yellowish red (5YR 4/6) clay; strong fine and medium subangular blocky structure; firm, plastic; few fine roots; few worm and root holes filled with Ap material; continuous clay films on ped faces; very strongly acid; gradual wavy boundary.

B22t—19 to 25 inches; mottled yellowish red (5YR 4/8), light brownish gray (2.5Y 6/2), and red (2.5YR 4/6) clay loam; moderate fine and medium subangular blocky structure; firm, plastic; few fine roots; few fine brown and black concretions; continuous clay films on ped faces; very strongly acid; clear wavy boundary.

B23t—25 to 33 inches; mottled yellowish brown (10YR 5/8) and light brownish gray (2.5Y 6/2) clay loam; moderate fine and medium subangular blocky structure; firm, slightly plastic; few fine roots; few fine brown and black concretions; patchy clay films on ped faces; very strongly acid; clear wavy boundary.

B3—33 to 42 inches; yellowish brown (10YR 5/6) loam; weak fine granular structure; very friable; few sand grains are bridged and coated; very strongly acid; gradual wavy boundary.

IIC—42 to 60 inches; brownish yellow (10YR 6/6) sand; single grained: loose; very strongly acid.

Reaction ranges from strongly acid to very strongly acid throughout.

The Ap horizon is dark brown or dark grayish brown.

The B21t horizon is yellowish red, reddish brown, or red. Texture is clay or clay loam.

The B22t and B23t horizons are dominantly in shades of brown or red and have grayish mottles, or they are mottled in shades of red, gray, and brown. Texture is clay or clay loam. Clay content of the upper 20 inches of the Bt horizon ranges from 36 to 60 percent. The B3 horizon has colors similar to those of the B2t horizon. Texture is sandy clay loam or loam.

The C horizon is dominantly in shades of brown and yellow, or it is mottled in shades of brown and gray. Texture is loamy sand or sand; in some pedons, this horizon contains gravel. There are no to common brown and black concretions.

Binnsville series

The Binnsville series consists of well drained, alkaline soils that formed in thin beds of marly clay over calcareous chalk. Slopes range from 2 to 8 percent.

Binnsville soils are associated with Demopolis, Okolona, Sumter, and Vaiden soils. Binnsville soils differ from Demopolis soils in that they have a darker surface layer. They differ from Okolona soils by lacking the thick, dark A horizon and the slickensides within a depth of 40 inches. Binnsville soils have a darker surface layer and are much shallower to the firm chalk than Sumter soils. Vaiden soils have a thicker solum than Binnsville soils. They also have an acid B horizon and slickensides within a depth of 40 inches.

Typical pedon of Binnsville silty clay loam, in an area of Demopolis-Binnsville complex, 2 to 8 percent slopes, eroded, about 1,800 feet south of railroad track at Artesia, 2,000 feet west of U.S. Highway 45, SE1/4NE1/4 sec. 19, T. 18 N., R. 16 E.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate fine granular structure; friable, plastic and sticky; common fine roots; few fine lime concretions; common worm casts; mildly alkaline; clear wavy boundary.

A1—7 to 11 inches; very dark grayish brown (10YR 3/2) silty clay loam; many fine distinct spots of grayish brown; moderate fine granular structure; friable, plastic and sticky; few fine roots; common fine and medium chalk fragments; many fine lime concretions; common worm casts; mildly alkaline; calcareous; clear wavy boundary.

Cr—11 to 40 inches; light gray (10YR 7/2) chalk; common fine and medium distinct pale yellow (2.5Y 7/4) and yellowish brown (10YR 5/6) spots and streaks; horizontal platy rock structure; can be dug with spade when moist; few fine roots and some soil stains between plates in upper part; moderately alkaline; calcareous.

Thickness of the soil over chalk ranges from 8 to 18 inches. Hardness of the chalk is 1 to 3 on Mohs scale. The chalk can be dug with a spade when moist. Reaction ranges from mildly alkaline to moderately alkaline.

The Ap and A1 horizons are very dark grayish brown or very dark gray. In some pedons they contain few to many fine and medium weathered chalk fragments.

The Cr horizon is light gray to light brownish gray and has few to common fine to coarse streaks and splotches in shades of yellow and brown. Some pedons have a C

horizon in which content of chalk fragments is 10 to 40 percent; more than 50 percent of this horizon is soil.

Brooksville series

The Brooksville series consists of somewhat poorly drained soils that formed in clayey material over calcareous chalk. Slopes range from 0 to 3 percent.

Brooksville soils are associated with Okolona, Sumter, and Vaiden soils. Brooksville soils differ from Okolona soils by having distinct and prominent mottles within the upper 20 inches of the dark A horizon. In addition, Okolona soils are neutral to alkaline throughout. Brooksville soils have a thicker, darker A horizon than Sumter and Vaiden soils. In addition, Sumter soils lack intersecting slickensides in the upper 40 inches. Brooksville soils are also less acid than Vaiden soils.

Typical pedon of Brooksville silty clay, 0 to 1 percent slopes, in a 100-acre area of pasture about 0.75 mile south of Artesia, 1.5 miles east of U.S. Highway 45, 200 yards east of pipeline, and 30 feet south of gravel road, NE1/4NE1/4 sec. 28, T. 18 N., R. 16 E.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium granular and subangular blocky structure; firm, plastic and sticky; common fine roots; few fine brown and black concretions; few worm casts; strongly acid; clear smooth boundary.

A11—8 to 17 inches; very dark grayish brown (2.5Y 3/2) silty clay; few fine distinct dark reddish brown mottles; weak medium prismatic structure that parts to moderate fine and medium subangular and angular blocky; firm, very plastic and very sticky; common fine roots along ped faces; few fine brown and black concretions; few worm casts; strongly acid; gradual wavy boundary.

A12—17 to 38 inches; dark grayish brown (2.5Y 4/2) silty clay; common fine prominent dark reddish brown and common fine distinct dark brown mottles; weak medium prismatic structure that parts to moderate fine and medium subangular and angular blocky; firm, very plastic and very sticky; few fine roots along ped faces; few fine brown and black concretions; few slickensides that do not intersect; neutral; gradual wavy boundary.

AC—38 to 55 inches; mottled dark grayish brown (2.5Y 4/2) and olive brown (2.5Y 4/4) clay; intersecting slickensides 2 to 4 inches in cross section that form wedge-shaped natural fragments; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few fine to coarse calcium carbonate concretions; mildly alkaline; gradual wavy boundary.

C—55 to 80 inches; light olive brown (2.5Y 5/6) clay; common fine faint gray mottles; intersecting slickensides that form coarse wedge-shaped natural fragments; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; common fine to coarse calcium carbonate concretions; few pockets of olive brown (2.5Y 4/4) clay; mildly alkaline.

Thickness of the soil over chalk ranges from 43 to more than 80 inches. Intersecting slickensides are at a depth of 20 to 38 inches. Reaction of the Ap, A11, and A12 horizons ranges from strongly acid to slightly acid, except where limed. Reaction of the AC and C horizons ranges from neutral to moderately alkaline.

The A horizon is very dark grayish brown, very dark brown, dark grayish brown, or dark brown. Few to many distinct and prominent mottles of red, yellowish red, dark reddish brown, or dark brown are within 20 inches of the surface. Texture of the A horizon is silty clay or silty clay loam.

The AC and C horizons are dark grayish brown, light olive brown, olive brown, olive, or olive gray, or they are mottled in shades of these colors. Texture is silty clay or clay. Few to many black and brown concretions are throughout the AC and C horizons, and few to many lime nodules are in the lower part.

Cahaba series

The Cahaba series consists of well drained soils that formed in loamy material on terraces. Slopes range from 0 to 5 percent.

Cahaba soils are associated with Latonia and Prentiss soils. Cahaba soils are redder and finer textured in the B horizon than Latonia soils. They are better drained than, and lack the fragipan characteristic of, Prentiss soils.

Typical pedon of Cahaba fine sandy loam, 0 to 2 percent slopes, in a 30-acre area of cropland about 1 mile northwest of Columbus, 0.25 mile north of Plymouth Road, and 40 feet east of gravel road, NW1/4NW1/4 sec. 17, T. 18 S., R. 18 W.

Ap—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam; few fine and medium distinct spots of strong brown (7.5YR 5/6); weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B2t—7 to 24 inches; yellowish red (5YR 4/6) sandy clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots; few worm and root holes filled with dark brown (10YR 4/3) Ap material; continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B3—24 to 40 inches; strong brown (7.5YR 5/6) fine sandy loam; common fine and medium distinct yellowish red (5YR 4/6) mottles; moderate fine and medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

C1—40 to 59 inches; yellowish brown (10YR 5/6) loamy sand; single grained; loose; few fine roots; few small

and medium pebbles; some sand grains are bridged and coated; very strongly acid; gradual wavy boundary.

C2—59 to 80 inches; brownish yellow (10YR 6/6) sand; single grained; loose; about 15 percent gravel by volume; very strongly acid.

Thickness of the solum ranges from 40 to 60 inches. Reaction ranges from strongly acid to very strongly acid throughout.

The Ap horizon is dark brown, dark grayish brown, or dark yellowish brown.

The Bt horizon is yellowish red, dark red, or red. Texture is sandy clay loam or loam, and clay content in the upper 20 inches ranges from 18 to 32 percent.

The C horizon is yellowish brown, strong brown, brownish yellow, or yellowish red. Texture is loamy sand, sandy loam, or sand. Gravel content in the C horizon ranges from 0 to 15 percent, by volume.

Caledonia series

The Caledonia series consists of well drained soils that formed in thick, loamy sediments on terraces. Slopes range from 0 to 8 percent.

Caledonia soils are associated with Paden and Savannah soils. Caledonia soils are better drained and redder than, and lack the fragipan characteristic of, Paden and Savannah soils.

Typical pedon of Caledonia silt loam, 0 to 2 percent slopes, in a 30-acre area of cropland about 0.75 mile east of Caledonia, 40 feet north of blacktop road, NE1/4NE1/4 sec. 15, T. 16 S., R. 17 W.

Ap—0 to 7 inches; dark brown (7.5YR 4/4) silt loam; weak fine granular structure; friable; common fine roots; neutral; clear smooth boundary.

B21t—7 to 13 inches; dark red (2.5YR 3/6) silt loam; weak fine and medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; neutral; gradual smooth boundary.

B23t—13 to 26 inches; dark reddish brown (2.5YR 3/4) clay loam; moderate fine and medium subangular blocky structure; firm, slightly plastic; few fine roots; continuous clay films on most ped faces; medium acid; gradual smooth boundary.

B23t—26 to 50 inches; dark red (2.5YR 3/6) clay loam; moderate fine and medium subangular blocky structure; firm, slightly plastic; few fine roots; few fine pebbles; patchy dark coats on some ped faces; continuous clay films on most ped faces; strongly acid; gradual smooth boundary.

B24t—50 to 72 inches; dark red (2.5YR 3/6) clay loam; moderate medium subangular blocky structure; firm, slightly plastic; few fine roots; few fine pores; patchy clay films on some ped faces; few coats and patches of fine sand on some ped faces; strongly acid; gradual smooth boundary.

B25t—72 to 86 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; firm, slightly plastic; common fine pores; patchy clay films on some ped faces; few coats and patches of fine sand on some ped faces; strongly acid.

The solum ranges from 60 to more than 80 inches in thickness. Reaction ranges from neutral to strongly acid in the A and B21t horizons and from medium acid to very strongly acid in the lower part of the Bt horizon.

The A horizon is dark brown, reddish brown, or dark yellowish brown.

The Bt horizon is dark reddish brown, reddish brown, red, yellowish red, or dark red. Texture is silt loam, loam, clay loam, or sandy clay loam. Clay content in the upper 20 inches of the Bt horizon is 20 to 35 percent. Content of sand coarser than very fine is more than 15 percent. There are no to common black coatings and concretions in the Bt horizon.

Catalpa series

The Catalpa series consists of moderately well drained soils on flood plains. These soils formed in fine textured alluvium. Slopes range from 0 to 2 percent.

Catalpa soils are associated with Griffith, Leeper, and Tuscumbia soils. Catalpa soils differ from Griffith soils by having a dark A horizon less than 24 inches thick. Catalpa soils differ from Leeper soils by having a dark A horizon more than 10 inches thick. Catalpa soils differ from Tuscumbia soils by lacking a dominantly gray subsoil.

Typical pedon of Catalpa silty clay, in an area of cropland about 1.4 miles south of U.S. Highway 82, 1.75 miles west of Motley School, 210 feet east of ditch, and 350 feet south of gravel road, SW1/4SW1/4 sec. 31, T. 19 N., R. 17 E.

Ap—0 to 5 inches; very dark grayish brown (2.5Y 3/2) silty clay; moderate fine and medium granular structure; friable, plastic and sticky; common fine roots; neutral; clear smooth boundary.

A1—5 to 21 inches; very dark grayish brown (2.5Y 3/2) silty clay; moderate medium subangular blocky and blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; mildly alkaline; gradual wavy boundary.

B21—21 to 35 inches; dark grayish brown (2.5Y 4/2) silty clay; common fine and medium distinct olive brown (2.5Y 4/4) mottles; weak medium prismatic structure parting to moderate medium subangular blocky and blocky; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; shiny pressure faces on some peds; mildly alkaline; gradual wavy boundary.

B22—35 to 60 inches; mottled dark grayish brown (10YR 4/2) and olive brown (2.5Y 4/4) clay; weak coarse angular blocky structure; firm, very plastic and very

sticky; few fine roots; few fine brown and black concretions; shiny pressure faces on peds; moderately alkaline.

Solum thickness exceeds 60 inches. Reaction ranges from slightly acid to moderately alkaline throughout. Some pedons have calcareous horizons. There are no to common lime concretions and brown and black concretions.

The A horizon is very dark grayish brown or dark brown. Texture is silty clay or clay. There are overwashes of browner and coarser materials less than 10 inches thick along stream channels. Thickness of the A horizon ranges to as much as 24 inches.

The upper part of the B horizon is dark grayish brown and has grayish mottles, or it is mottled in shades of brown and gray. Texture is silty clay or clay. The lower part of the B horizon is mottled in shades of brown and gray. Texture is silty clay or clay.

Columbus series

The Columbus series consists of moderately well drained soils that formed in loamy material on terraces. Slopes range from 0 to 2 percent.

Columbus soils are associated with Annemaine soils. They have a browner, more loamy B horizon than Annemaine soils.

Typical pedon of Columbus silt loam, in a field about 2.5 miles northwest of Columbus, 150 feet north of log road, and 30 feet west of woods, SE1/4NW1/4 sec. 12, T. 18 S., R. 19 W.

Ap—0 to 6 inches; dark brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

B21t—6 to 16 inches; dark brown (7.5YR 4/4) clay loam; moderate fine and medium subangular blocky structure; firm, slightly plastic and slightly sticky; few fine roots; few fine brown and black concretions; continuous clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—16 to 21 inches; yellowish brown (10YR 5/6) clay loam; common fine and medium distinct pale brown (10YR 6/3) and few fine prominent yellowish red mottles; moderate fine and medium subangular blocky structure; firm, slightly plastic and slightly sticky; few fine roots; few fine pores; patchy clay films on faces of peds; few fine brown and black concretions; very strongly acid; clear wavy boundary.

B23t—21 to 28 inches; yellowish brown (10YR 5/6) clay loam; many fine and medium distinct light brownish gray (10YR 6/2) and common fine and medium prominent red (2.5YR 5/6) mottles; moderate medium subangular and angular blocky structure; firm, slightly plastic and slightly sticky; few fine roots; few fine pores; patchy clay films on faces of peds; few fine brown and black concretions; very strongly acid; gradual wavy boundary.

B3—28 to 52 inches; light brownish gray (10YR 6/2) sandy clay loam; many fine and medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few patchy clay films on faces of peds; coats of very fine sand on faces of some peds; few fine brown and black concretions; very strongly acid; gradual wavy boundary.

C1—52 to 70 inches; mottled light brownish gray (2.5Y 6/2), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/4) sandy loam; massive; friable; few fine roots; few fine black and brown concretions; very strongly acid; gradual wavy boundary.

IIC2—70 to 76 inches; mottled light gray (2.5Y 7/2), yellowish brown (10YR 5/6), and light yellowish brown (10YR 6/4) loamy sand; single grained; loose; very strongly acid.

Solum thickness ranges from 35 to 60 inches. Reaction ranges from strongly acid to very strongly acid.

The A horizon is dark brown, brown, or dark grayish brown.

The B21t horizon is yellowish brown, dark yellowish brown, strong brown, or dark brown. Texture is clay loam, loam, or sandy clay loam. The B22t and B23t horizons are yellowish brown, dark yellowish brown, dark brown, or strong brown and have mottles in shades of brown, gray, or red, or they are mottled in shades of brown, gray, and red. Texture is clay loam, loam, or sandy clay loam.

The B3 horizon is light brownish gray or grayish brown and has mottles in shades of brown and red, or it is mottled in shades of gray, brown, and red. Texture is sandy clay loam, loam, or fine sandy loam. The upper 20 inches of the B horizon has clay content of 18 to 33 percent and silt content of more than 20 percent.

The C horizon is mottled in shades of brown or gray or is strong brown, yellowish brown, or dark brown and has brownish and grayish mottles. Texture is sandy loam, loamy sand, or sand.

Demopolis series

The Demopolis series consists of well drained, calcareous soils that formed in thin beds of marly clay over chalk. Slopes range from 2 to 8 percent.

Demopolis soils are associated with Binnsville, Okolona, and Sumter soils. Demopolis soils have a lighter colored A horizon than Binnsville soils. They lack the thick, dark A horizon and the slickensides of Okolona soils. The A horizons in Demopolis and Sumter soils are similar in color, but Sumter soils have a solum more than 20 inches thick.

Typical pedon of Demopolis silty clay loam, in an area of Demopolis-Binnsville complex, 2 to 8 percent slopes,

eroded, about 0.5 mile south of railroad track at Artesia, 100 feet east of U.S. Highway 45, NW1/4SW1/4 sec. 20, T. 18 N., R. 16 E.

Ap—0 to 7 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine granular structure; friable, plastic and sticky; common fine roots; few fine to coarse lime nodules and concretions; common worm casts; moderately alkaline; calcareous; clear smooth boundary.

C1—7 to 12 inches; light gray (10YR 7/2) weakly consolidated platy fragments of chalk (75 to 90 percent) and dark grayish brown (10YR 4/2) silty clay loam between plates and in cracks; few fine and medium distinct pale yellow mottles; chalk has platy rock structure, and soil material has moderate fine granular structure; soil is friable; few fine roots between plates in soil material; moderately alkaline; calcareous; clear smooth boundary.

Cr—12 to 40 inches; light gray (10YR 7/2) chalk; few fine and medium distinct yellow splotches and streaks; horizontal platy rock structure; can be dug with some difficulty with a spade when moist; moderately alkaline; calcareous.

Thickness of soil over chalk ranges from 4 to 14 inches. Hardness of the chalk is estimated to be 1 to 3 on Mohs scale. The chalk can be dug with some difficulty with a spade and marked with fingernail when moist. Reaction is mildly alkaline or moderately alkaline throughout.

The Ap horizon is dark grayish brown, grayish brown, or brown. Content of chalk fragments ranges from 0 to about 25 percent.

Content of light gray and light brownish gray chalk fragments in the C horizon is about 55 to 95 percent, and content of dark grayish brown or dark brown silty clay loam or silty clay soil is 5 to 45 percent.

The Cr horizon is light gray or light brownish gray. There are few to common, fine to coarse streaks and splotches in shades of yellow and brown.

Griffith series

The Griffith series consists of moderately well drained soils on flood plains. These soils formed in clayey material. Slopes range from 0 to 2 percent.

Griffith soils are associated with Catalpa and Leeper soils. Griffith soils differ from Catalpa and Leeper soils by having a dark A horizon more than 24 inches thick. Griffith soils also have higher shrink-swell characteristics than Catalpa and Leeper soils.

Typical pedon of Griffith silty clay, in an area of cropland about 2.5 miles northeast of Artesia, about 500 yards south of blacktop road, NW1/4SE1/4 sec. 3, T. 18 N., R. 16 E.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay; moderate fine and medium granular structure; firm, very plastic; many fine roots; common worm casts; mildly alkaline; clear smooth boundary.

A11—7 to 27 inches; very dark grayish brown (2.5Y 3/2) clay; moderate fine granular and angular blocky structure; firm, very plastic; common fine roots; few worm casts; shiny ped faces; moderately alkaline; gradual wavy boundary.

A12—27 to 41 inches; very dark grayish brown (2.5Y 3/2) clay; common fine and medium distinct dark grayish brown (2.5Y 4/2) mottles; moderate fine granular and angular blocky structure; firm, very plastic; few fine roots; few fine calcium carbonate nodules; shiny ped faces; few intersecting slickensides; moderately alkaline; noncalcareous; gradual wavy boundary.

AC—41 to 65 inches; dark gray (10YR 4/1) clay; many fine and medium distinct olive brown (2.5Y 4/4) mottles; strong coarse blocky grooved intersecting natural fragments; very firm, very plastic; few fine and medium calcium carbonate nodules; shiny ped faces; moderately alkaline; noncalcareous.

Reaction ranges from neutral to moderately alkaline. There are no to many concretions of calcium carbonate. These concretions are more numerous in the AC horizon than in the A horizon.

The A horizon is very dark grayish brown, very dark gray, or dark olive gray. Thickness ranges from 24 to 42 inches.

The AC horizon is dark gray, dark grayish brown, grayish brown, or olive gray. Texture is silty clay or clay. The weighted average clay content of the 10- to 40-inch control section ranges from 40 to 60 percent. Intersecting slickensides begin at a depth of 28 to 40 inches.

Guyton series

The Guyton series consists of poorly drained soils that formed in silty material on broad flats and in depressional areas of silty terraces. Slopes range from 0 to 2 percent.

Guyton soils are associated with Pheba soils. Guyton soils differ from Pheba soils by having a dominantly gray subsoil and by lacking a fragipan.

Typical pedon of Guyton silt loam, in a wooded area about 2 miles east of Caledonia, 46 feet south of curve in gravel road, NW1/4NE1/4 sec. 14, T. 16 S., R. 17 W.

A1—0 to 6 inches; grayish brown (10YR 5/2) silt loam; few fine faint light brownish gray mottles; weak fine granular structure; friable; common fine to coarse roots; strongly acid; clear smooth boundary.

A21g—6 to 11 inches; light brownish gray (10YR 6/2) silt loam; few fine faint dark yellowish brown mottles; weak fine granular structure; friable; few fine and medium roots; common fine pores; strongly acid; clear smooth boundary.

A22g—11 to 18 inches; light brownish gray (10YR 6/2) silt loam; few fine to coarse distinct pale brown (10YR 6/3) mottles; weak thin platy and weak fine subangular blocky structure; friable; few fine roots; few fine brown and black concretions; common fine pores; strongly acid; clear wavy boundary.

B&A—18 to 23 inches; gray (10YR 5/1) silty clay loam; common fine and coarse distinct yellowish brown (10YR 5/6) mottles; weak medium prismatic structure parting to weak fine and medium platy; firm; few fine roots; few fine brown and black concretions; patchy clay films on faces of peds; pockets and tongues of light brownish gray silt loam; tongues are 0.25 inch to 1.5 inches wide and 3 to 8 inches apart through the horizon; fine pores; very strongly acid; clear wavy boundary.

B21tg—23 to 42 inches; gray (10YR 5/1) silty clay loam; few fine to coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure parting to moderate fine and medium subangular and angular blocky; firm, plastic and sticky; few fine roots; few fine brown and black concretions; few fine pebbles; dark gray (10YR 4/1) clay films on some ped faces; pockets and tongues of light brownish gray silt loam; tongues are 0.25 inch to 1.5 inches wide and 3 to 8 inches apart through the horizon; very strongly acid; gradual wavy boundary.

B22tg—42 to 58 inches; gray (10YR 5/1) silt loam; common fine and medium distinct yellowish brown (10YR 5/6) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm, slightly plastic and slightly sticky; few fine roots; few fine brown and black concretions; patchy clay films on faces of peds; pockets and tongues of light brownish gray silt loam; tongues are 0.25 inch to 1.5 inches wide and 3 to 8 inches apart through the horizon; very strongly acid; gradual wavy boundary.

B23tg—58 to 75 inches; light brownish gray (10YR 6/2) silt loam; few fine and medium distinct light yellowish brown (10YR 6/4) mottles; weak fine and medium subangular blocky structure; firm, slightly plastic and slightly sticky; few fine roots; few fine brown and black concretions; few fine pebbles; patchy clay films on faces of peds; few pockets and tongues of gray silt; few fine and medium bodies of gray silty clay loam; very strongly acid.

Solum thickness ranges from 60 to 80 inches. Reaction ranges from strongly acid to very strongly acid. These soils lack a natric horizon, but content of exchangeable sodium ranges from about 10 to 40 percent in the lower part of the solum.

The A1 or Ap horizon is grayish brown or dark grayish brown. The A2g horizon is light brownish gray or light gray and has few to common brownish mottles. The lower boundary is clear and irregular, and tongues of A2 material extend into the Bt horizon.

The B2tg horizon is gray, light brownish gray, or grayish brown and has few or common mottles in shades of brown. Texture is silt loam, silty clay loam, or sandy clay loam. Clay content in the upper 20 inches of the B horizon is 18 to 34 percent, and content of sand coarser than very fine is less than 15 percent.

Jena series

The Jena series consists of well drained soils on flood plains. These soils formed in loamy material. Slopes range from 0 to 2 percent.

Jena soils are associated with Kinston, Mantachie, and Nugent soils. Jena soils are better drained than Kinston and Mantachie soils, and they lack grayish colors in the upper 24 inches of the solum. They are lighter textured than Mantachie soils in that clay content is less than 18 percent in the 10- to 40-inch control section. Jena soils differ from Nugent soils by having a less sandy textured subsoil and by lacking bedding planes in the upper 20 inches of the solum.

Typical pedon of Jena loam, in a wooded area about 1 mile east of Mississippi Highway 12, 1.75 miles west of Alabama State line, 100 feet north of blacktop road, and 100 feet west of small stream, NW1/4NW1/4 sec. 2, T. 17 S., R. 17 W.

A1—0 to 5 inches; dark brown (10YR 4/3) loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21—5 to 10 inches; dark brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; common fine roots; few fine pores; very strongly acid; clear smooth boundary.

B22—10 to 26 inches; dark yellowish brown (10YR 4/4) silt loam with high sand content; weak fine subangular blocky structure; friable; few fine roots; few fine brown and black concretions; few fine and medium pebbles; very strongly acid; gradual smooth boundary.

B23—26 to 36 inches; dark yellowish brown (10YR 4/4) loam; common fine and medium distinct light brownish gray (10YR 6/2) and few fine prominent reddish brown mottles; weak fine subangular blocky structure; friable; few fine roots; few fine brown and black concretions; few fine and medium pebbles; very strongly acid; gradual wavy boundary.

B24—36 to 45 inches; yellowish brown (10YR 5/4) loam; common fine and medium distinct light brownish gray (10YR 6/2) and reddish brown (2.5YR 4/4) mottles; weak fine subangular blocky structure; friable; few fine roots; few fine brown and black concretions; few fine and medium pebbles; very strongly acid.

C—45 to 60 inches; mottled dark yellowish brown (10YR 4/4), light brownish gray (10YR 6/2), and strong brown (7.5YR 5/6) loam; massive; friable; few fine

brown and black concretions; few fine and medium pebbles; very strongly acid.

Reaction ranges from strongly acid to very strongly acid throughout.

The A horizon is dark brown, dark grayish brown, or brown.

The B21 and B22 horizons are dark brown, dark yellowish brown, yellowish brown, or strong brown. The B23 and B24 horizons are similar in color to the B21 and B22 horizons but have grayish mottles below a depth of 24 inches, or they are mottled in shades of brown and gray. Texture of the B horizon is silt loam, loam, fine sandy loam, or sandy loam restrictive to combinations of textures that yield, in the 10- to 40-inch control section, 10 to 18 percent (weighted average) clay and 20 to 40 percent (weighted average) sand coarser than very fine.

Kinston series

The Kinston series consists of poorly drained soils on flood plains. These soils formed in loamy alluvium. Slopes range from 0 to 2 percent.

Kinston soils are associated with Jena, Mantachie, and Nugent soils. Kinston soils differ from Jena, Mantachie, and Nugent soils by having a dominantly gray subsoil. They also have a finer textured subsoil than Nugent soils.

Typical pedon of Kinston loam, in a wooded area about 400 yards northwest of Rubens, 200 feet south of U.S. Highway 82 bypass, and 100 feet east of small road, NW1/4SW1/4 sec. 17, T. 19 N., R. 18 W.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) loam; common fine and medium distinct dark yellowish brown (10YR 3/4) mottles; weak fine granular structure; friable; common fine and medium roots; common fine and medium brown and black concretions and stains; strongly acid; clear smooth boundary.

B21g—7 to 18 inches; light brownish gray (10YR 6/2) loam; common fine and medium distinct dark yellowish brown (10YR 3/4) mottles; weak fine subangular blocky structure; firm, slightly sticky; few fine roots; common fine and medium brown and black concretions and stains; very strongly acid; gradual smooth boundary.

B22g—18 to 36 inches; light brownish gray (10YR 6/2) loam; many fine and medium distinct brown (10YR 5/3) mottles; weak fine subangular blocky structure; firm, slightly plastic; few fine roots; common fine and medium brown and black concretions; very strongly acid; gradual smooth boundary.

B23g—36 to 65 inches; light brownish gray (10YR 6/2) loam; common fine and medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; firm, slightly plastic; few fine roots; few fine brown and black concretions; very strongly acid.

Solum thickness ranges from 40 to more than 60 inches. Reaction ranges from strongly acid to very strongly acid. There are no to common brown and black concretions. Gravel content is as much as 10 percent in the lower part of some pedons. There is an irregular decrease in organic matter content with depth.

The A horizon is dark grayish brown, grayish brown, or brown.

The B2g horizon is light brownish gray or gray and has few to many mottles in shades of brown and yellow. Texture is loam, sandy clay loam, or clay loam. Clay content in the 10- to 40-inch control section averages 20 to 35 percent, and content of sand coarser than very fine is more than 15 percent.

The C horizon, where present, is mottled in shades of gray and brown.

Kipling series

The Kipling series consists of somewhat poorly drained soils that formed in clayey material over calcareous chalk. Slopes range from 0 to 8 percent.

Kipling soils are associated with Sessum and Vaiden soils. Kipling soils differ from Sessum soils by lacking a dominantly gray subsoil. They differ from Vaiden soils by having clay content of less than 60 percent in the 10- to 40-inch layer and by lacking intersecting slickensides above a depth of 40 inches.

Typical pedon of Kipling silty clay loam, 0 to 2 percent slopes, in an area of pasture about 0.75 mile south of Clay County line, 0.25 mile west of U.S. Highway 45, and 100 yards south of gravel road, southeast corner of NE1/4SW1/4 sec. 19, T. 19 N., R. 16 E.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine granular structure; friable, plastic; common fine roots; few root and worm channels; strongly acid; clear smooth boundary.

B21t—5 to 15 inches; mottled red (2.5YR 4/6), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) clay; moderate fine and medium subangular and angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; patchy clay films or pressure faces on most peds; very strongly acid; gradual smooth boundary.

B22t—15 to 33 inches; mottled yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) clay; moderate fine and medium angular and subangular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; clay films or pressure faces on most peds; very strongly acid; gradual wavy boundary.

B23t—33 to 48 inches; yellowish brown (10YR 5/6) clay; common fine and medium distinct light brownish gray (2.5Y 6/2) mottles; moderate fine and medium angular and subangular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few medium very dark gray (10YR 3/1) spots; patchy clay films or pressure faces on peds; few slickensides that do not intersect; strongly acid; gradual wavy boundary.

C1—48 to 64 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and light olive brown (2.5Y 5/4) clay; strong coarse blocky grooved intersecting natural fragments; firm, very plastic and very sticky; few fine roots; few fine and medium lime concretions; neutral; gradual wavy boundary.

C2—64 to 81 inches; mottled yellowish brown (10YR 5/6) and light brownish gray (2.5Y 6/2) silty clay; strong coarse blocky grooved intersecting natural fragments; firm, very plastic and very sticky; few fine and medium lime concretions; common fine and medium dark enriched spots; mildly alkaline.

Solum thickness ranges from 38 to 55 inches. The calcareous material is in an irregular pattern and occurs within a depth of about 38 to 72 inches. Reaction ranges from medium acid through very strongly acid in the A and Bt horizons and from strongly acid through moderately alkaline in the B3 and C horizons.

The A horizon is dark grayish brown, dark brown, or dark yellowish brown.

The B2 horizon is red, yellowish red, strong brown, dark brown, yellowish brown, or dark yellowish brown and has few to many mottles having chroma of 2 or less within the upper 10 inches, or it is mottled in shades of red, yellow, brown, and gray. Texture is silty clay loam, silty clay, or clay. Clay content of the upper 20 inches of the B horizon ranges from 35 to 58 percent.

The B3 and C horizons are mottled in shades of brown, yellow, and gray. Texture is silty clay or clay. There are few to many manganese concretions in the C horizon and no to many lime concretions.

Latonia series

The Latonia series consists of well drained soils that formed in loamy material. Slopes range from 0 to 5 percent.

Latonia soils are associated with Cahaba and Prentiss soils. Latonia soils have a browner subsoil and are lighter textured than Cahaba soils. Latonia soils differ from Prentiss soils by lacking a fragipan in the B horizon.

Typical pedon of Latonia loamy sand, about 1,000 feet north of Mississippi Highway 50 behind the water plant and 200 yards west of Luxapalila Creek, SW1/4NW1/4 sec. 11, T. 18 S., R. 18 W.

Ap—0 to 7 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

B21t—7 to 16 inches; dark brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; friable; few fine roots; sand grains are bridged and coated with clay; very strongly acid; gradual smooth boundary.

B22t—16 to 42 inches; strong brown (7.5YR 5/6) sandy loam; weak fine and medium subangular blocky structure; friable; few fine roots; sand grains are bridged and coated with clay; few pockets of uncoated sand grains; very strongly acid; gradual smooth boundary.

IIC—42 to 70 inches; very pale brown (10YR 7/4) sand; single grained; loose; very strongly acid.

Solum thickness ranges from 24 to 42 inches. Reaction ranges from strongly acid to very strongly acid.

The A horizon is dark brown, dark grayish brown, or brown.

The B2 horizon is strong brown, dark brown, or yellowish brown. Texture is sandy loam, fine sandy loam, or loam. Clay content ranges from 10 to 16 percent, and silt content ranges from 20 to 35 percent.

The IIC horizon is variable in color; it ranges from very pale brown to dark yellowish brown.

Leeper series

The Leeper series consists of somewhat poorly drained soils on flood plains. These soils formed in fine textured alluvium. Slopes range from 0 to 2 percent.

Leeper soils are associated with Catalpa, Griffith, and Tuscumbia soils. Leeper soils differ from Catalpa and Griffith soils by lacking the dark A horizon more than 10 inches thick. Also, Griffith soils are calcareous in some parts. Leeper soils differ from Tuscumbia soils by lacking a dominantly gray subsoil.

Typical pedon of Leeper silty clay, in an area of cropland about 1.5 miles north of Artesia, 1,900 feet west of U.S. Highway 45, 600 feet south of gravel road, NE1/4SW1/4 sec. 7, T. 18 N., R. 16 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine and medium granular structure; friable, plastic and sticky; few fine roots; few worm casts; mildly alkaline; clear smooth boundary.

B21—6 to 16 inches; dark grayish brown (10YR 4/2) clay; common fine distinct dark brown mottles; moderate fine and medium subangular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few worm casts; mildly alkaline; clear wavy boundary.

B22g—16 to 33 inches; gray (10YR 5/1) clay; many fine and medium distinct yellowish brown (10YR 5/4) mottles; moderate fine and medium subangular and angular blocky structure; firm, very plastic and very

sticky; few fine roots; few fine brown and black concretions; shiny pressure faces on some peds; mildly alkaline; gradual wavy boundary.

Cg—33 to 60 inches; gray (10YR 5/1) clay; many fine and medium distinct yellowish brown (10YR 5/4) and dark brown (7.5YR 4/4) mottles; massive, some breaking to weak fine and medium subangular and angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few fine and medium lime concretions; few slickensides that do not intersect; few shiny pressure faces on peds; mildly alkaline.

There are few to many brown and black concretions, and some pedons have lime concretions in the lower horizons. Reaction ranges from medium acid to mildly alkaline.

The Ap horizon is dark grayish brown or very dark grayish brown. Where this horizon is very dark grayish brown or darker, it is less than 10 inches thick.

The B21 horizon is dark grayish brown and has mottles in shades of gray and brown. The B22 horizon is dominantly gray and has mottles in shades of brown. Texture is clay, silty clay, or silty clay loam. Clay content in the 10- to 40-inch control section ranges from 35 to 60 percent, and less than 15 percent of the sand fraction is coarser than very fine.

The C horizon is dominantly gray and has mottles in shades of brown and yellow, or it is mottled in shades of gray, brown, and yellow. Texture is clay, silty clay, or silty clay loam.

Mantachie series

The Mantachie series consists of somewhat poorly drained soils on flood plains. These soils formed in loamy material. Slopes range from 0 to 2 percent.

Mantachie soils are associated with Jena, Kinston, and Nugent soils. Mantachie soils are better drained and finer textured than the dominantly gray Kinston soils. They differ from Jena and Nugent soils by having grayish colors within 24 inches of the surface. Mantachie soils also differ from Nugent soils by lacking bedding planes in the upper 20 inches of the solum.

Typical pedon of Mantachie loam, in an area of pasture about 1,900 feet southeast of Mississippi Highway 12, 400 feet east of Cooper Creek, SE1/4SE1/4 sec. 27, T. 16 S., R. 17 W.

Ap—0 to 8 inches; dark brown (10YR 4/3) loam; weak fine granular structure; friable; many fine roots; many fine and medium very dark grayish brown (10YR 3/2) enriched spots; medium acid; clear smooth boundary.

B21—8 to 18 inches; mottled yellowish brown (10YR 5/6), gray (10YR 5/1), and dark brown (7.5YR 4/4) loam; weak fine and medium subangular blocky structure; friable; common fine roots; common fine brown and black concretions; strongly acid; clear wavy boundary.

B22g—18 to 43 inches; light brownish gray (10YR 6/2) loam; many fine and medium distinct strong brown (7.5YR 5/6) and common fine and medium distinct yellowish red (5YR 4/6) mottles; weak fine and medium subangular blocky structure; firm; few fine roots; few fine brown and black concretions; few fine to coarse pebbles; very strongly acid; gradual wavy boundary.

B23g—43 to 60 inches; light brownish gray (10YR 6/2) loam; many fine and medium distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine roots; few fine brown and black concretions; few fine to coarse pebbles; very strongly acid; clear wavy boundary.

C—60 to 72 inches; gray (10YR 5/1) clay loam; common fine and medium distinct strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6) mottles; massive; firm; few fine to coarse pebbles; very strongly acid.

The soil is strongly acid or very strongly acid throughout, except where limed. There are no to common concretions throughout the solum.

The A horizon is dark grayish brown, dark brown, or brown, or it is mottled in shades of brown and gray.

The upper part of the B horizon is mottled in shades of brown and gray, or it has a matrix of dark brown, dark grayish brown, brown, or yellowish brown and few to many grayish mottles. The lower part of the B horizon is grayish brown, gray, light gray, or light brownish gray and has few to many mottles in shades of brown and red. Texture of the B horizon is loam, sandy clay loam, clay loam, or silt loam. Clay content in the 10- to 40-inch control section averages 18 to 32 percent, and content of sand coarser than very fine is more than 15 percent.

Nugent series

The Nugent series consists of excessively drained soils on flood plains. These soils formed in sandy material. Slopes range from 0 to 2 percent.

Nugent soils are associated with Jena, Kinston, and Mantachie soils. Nugent soils are lighter textured than Jena, Kinston, and Mantachie soils; they contain bedding planes, which the other soils lack. Nugent soils lack the grayish subsoil characteristic of Kinston and Mantachie soils.

Typical pedon of Nugent loamy sand, in an area of Nugent-Jena association, in a wooded area 400 feet south of Mississippi Highway 50, 75 feet east of Luxapalila Creek, SW1/4NW1/4 sec. 11, T. 18 S., R. 18 W.

A1—0 to 10 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; loose; common fine roots; few thin strata of very dark gray fine sandy loam; strongly acid; clear smooth boundary.

C1—10 to 16 inches; dark yellowish brown (10YR 4/4) sandy loam; single grained; loose; few fine roots; common thin strata of yellowish brown loamy sand; strongly acid; gradual smooth boundary.
C2—16 to 27 inches; dark yellowish brown (10YR 4/4) sand; single grained; loose; few fine roots; common coarse strata of dark brown loamy sand; strongly acid; gradual smooth boundary.
C3—27 to 54 inches; dark yellowish brown (10YR 4/4) sand; single grained; loose; few fine roots; few thin strata of light yellowish brown sandy loam; strongly acid; clear smooth boundary.
C4—54 to 61 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; few thin strata of light yellowish brown sand; medium acid.

Reaction ranges from medium acid to very strongly acid throughout.

The A horizon is brown, dark grayish brown, or dark brown.

The C horizon is yellowish brown, dark yellowish brown, light yellowish brown, or dark brown. Texture is dominantly sand or loamy sand, and there are strata of loamy sand, sandy loam, or fine sandy loam. Gravel content ranges from 0 to about 15 percent.

Okolona series

The Okolona series consists of well drained soils that formed in clayey material over calcareous chalk. Slopes range from 0 to 3 percent.

Okolona soils are associated with Binnsville, Brooksville, Demopolis, and Sumter soils. Okolona soils have a thicker dark A horizon than Binnsville soils and lack firm chalk within 20 inches of the surface. The upper parts of the A horizons in Okolona and Brooksville soils are similarly colored, but Brooksville soils have distinct or prominent mottles within 20 inches of the surface. Also, Okolona soils have a less acid A horizon than Brooksville soils. Okolona soils have a thicker, darker A horizon than Demopolis and Sumter soils and have intersecting slickensides, which Demopolis and Sumter soils lack.

Typical pedon of Okolona silty clay, 0 to 1 percent slopes, in an area of cropland about 1.5 miles east of Artesia, 500 yards south of blacktop road, opposite gravel road leading north on east side of pipeline, SE1/4SE1/4 sec. 16, T. 18 N., R. 16 E.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay; moderate fine and medium granular structure; friable, plastic and sticky; common fine roots; few fine brown and black concretions; neutral; clear smooth boundary.
A11—7 to 21 inches; very dark grayish brown (10YR 3/2) silty clay; few fine faint dark grayish brown mottles in lower 4 inches; moderate medium prismatic structure that parts to moderate fine and medium angular blocky; firm, very plastic and very sticky; common fine roots; few fine brown and black concretions; neutral; gradual wavy boundary.
A12—21 to 36 inches; dark grayish brown (2.5Y 4/2) clay; common fine distinct dark yellowish brown mottles; moderate medium prismatic structure that parts to moderate fine and medium angular blocky; firm, very plastic and very sticky; few fine roots; common fine brown and black concretions; shiny pressure faces on some peds; few slickensides intersect; neutral; gradual wavy boundary.
AC1—36 to 48 inches; dark grayish brown (2.5Y 4/2) clay; common fine and medium distinct olive brown (2.5Y 4/4) mottles; some intersecting slickensides that form parallelepipeds that part to moderate fine and medium angular blocky structure; firm, very plastic and very sticky; few fine roots; few brown and black concretions; mildly alkaline; gradual wavy boundary.
AC2—48 to 63 inches; olive (5Y 4/3) clay; common fine faint pale olive (5Y 6/4) mottles; intersecting slickensides that form parallelepipeds that part to moderate fine and medium angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few fine and medium calcium carbonate concretions; mildly alkaline; gradual wavy boundary.
C—63 to 72 inches; mottled light yellowish brown (2.5Y 6/4), yellowish brown (10YR 5/6), and grayish brown (2.5Y 5/2) clay; intersecting slickensides that form parallelepipeds that part to moderate fine and medium angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine to coarse calcium carbonate concretions; mildly alkaline.
Cr—72 to 76 inches; firm chalk in horizontal plates.

Reaction ranges from neutral to moderately alkaline. There are few to many fine to coarse lime concretions in some horizons. These concretions are more numerous and coarser in the lower horizons near the calcareous chalk or marl.

The Ap and A1 horizons are very dark grayish brown, dark olive gray, dark grayish brown, or dark brown. More than half of the upper 12 inches is very dark grayish brown or dark olive gray.

Thickness of the A and AC horizons ranges from 24 to 64 inches. The AC and C horizons have a matrix color in shades of brown or olive and have few to many mottles, or they are mottled in shades of brown, olive, or yellow. Texture is silty clay or clay. The soil within a depth of 40 inches has slickensides close enough to intersect; it also has parallelepipeds, the long axes of which are tilted 10 to 60 degrees from the horizontal. The soil has cracks at least 1 centimeter wide to a depth of 20 inches or more. These cracks open and close one or more times during the year. They do not remain open for as many as 90 cumulative days during the year.

Paden series

The Paden series consists of moderately well drained soils that formed in silty material. Slopes range from 0 to 2 percent.

Paden soils are associated with Caledonia, Pheba, and Savannah soils. Paden soils differ from Caledonia soils by having a brownish subsoil and a fragipan; Caledonia soils have a reddish subsoil and are well drained. Paden soils differ from Pheba soils by lacking grayish mottles in the subsoil within 16 inches of the surface. They differ from Savannah soils by not having clay films in the upper part of the subsoil and by having an A'2 horizon in the subsoil.

Typical pedon of Paden silt loam, in an area of pasture about 1.5 miles south of Caledonia, about 40 yards west of blacktop road, SW1/4NE1/4 sec. 21, T. 16 N., R. 17 W.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; common fine roots; common fine dark brown stains; few fine pebbles; medium acid; clear smooth boundary.

B2—6 to 19 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few fine pebbles; few fine root and worm holes filled with Ap material; common fine pores in the lower part; few pockets of uncoated silt; few thin clay films in pores; strongly acid; clear wavy boundary.

A'2&Bx1—19 to 29 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and dark brown (7.5YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in brown parts; light brownish gray area makes up about 20 to 30 percent of the mass; few fine roots; few fine pebbles and brown and black concretions; patchy clay films on a few faces of peds; silt coats on some ped faces; strongly acid; gradual wavy boundary.

Bx2—29 to 51 inches; yellowish brown (10YR 5/6) silt loam; common fine and medium distinct gray (10YR 5/1) and few fine and medium prominent yellowish red (5YR 4/8) mottles; weak medium prismatic structure parting to moderate fine and medium subangular blocky; firm, compact and brittle in more than 60 percent of the matrix; few fine roots between peds; few fine brown and black concretions and pebbles; patchy clay films on faces of prisms; light brownish gray coatings of silt loam between prisms; strongly acid; gradual wavy boundary.

IIBx3—51 to 70 inches; mottled yellowish brown (10YR 5/6), dark brown (7.5YR 4/4), and red (2.5YR 4/6) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in more than 60 percent of the matrix; few fine brown and black concretions and pebbles; patchy clay films on prism faces; light brownish gray silt loam between prisms; very strongly acid.

Depth to the fragipan ranges from 18 to 26 inches. Most pedons contain few fine pebbles throughout the solum. Reaction ranges from strongly acid to very strongly acid throughout, except where limed.

The Ap horizon is brown, dark brown, or dark grayish brown.

The B2 horizon is yellowish brown, dark brown, or strong brown. Mottles having chroma of 2 or less are not within 16 inches of the surface. Texture of the B2 horizon is silt loam or silty clay loam. Clay content in the B2 horizon is about 20 to 30 percent, and content of sand coarser than very fine is less than 15 percent. A few thin patchy clay films are in the B2 horizon in some pedons, but not on both vertical and horizontal faces of peds. These films are mostly in pores.

The Bx part of the A'2&Bx horizon is yellowish brown, dark brown, light yellowish brown, or strong brown, or it is mottled in shades of brown. The A'2 part is dominantly light brownish gray but ranges to grayish brown or pale brown. Texture of the A'2&Bx horizon is silt loam; clay content is at least 3 percent less than in the overlying and underlying horizons.

The Bx horizon is dominantly in shades of brown and has mottles in shades of gray and red, or it is mottled in shades of brown, gray, and red. Texture is silt loam or loam.

Pheba series

The Pheba series consists of somewhat poorly drained soils that formed in silty material. Slopes range from 0 to 2 percent.

Pheba soils are associated with Guyton, Paden, and Prentiss soils. Pheba soils differ from Guyton soils by lacking a dominantly gray subsoil and by having a fragipan. They differ from Paden and Prentiss soils by having grayish mottles within 16 inches of the surface and by having a coarser textured subsoil than Paden soils.

Typical pedon of Pheba silt loam, in an area of woodland, about 1.5 miles south of Caledonia, 600 yards west of crossroads, 60 feet north of gravel road, SE1/4NE1/4 sec. 20, T. 16 S., R. 17 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; common fine faint brown mottles; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21—4 to 14 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm; common fine and medium roots; few fine pebbles; common fine pores; very strongly acid; gradual smooth boundary.

B22—14 to 24 inches; mottled yellowish brown (10YR 5/4, 10YR 5/6) and light brownish gray (10YR 6/2) silt

loam; weak fine and medium subangular blocky structure; firm; few fine roots; few fine pebbles; common fine pores; very strongly acid; gradual wavy boundary.

A'2&B'x1—24 to 31 inches; light brownish gray (2.5Y 6/2) silt loam; weak fine and medium subangular blocky structure; slightly firm; about 30 percent B bodies that are mottled yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) and that are firm, compact, and brittle; few fine roots; few fine brown and black concretions; few fine pores; silt coats on most peds; few patchy clay films; very strongly acid; gradual wavy boundary.

B'x2—31 to 52 inches; yellowish brown (10YR 5/6, 10YR 5/4) loam; many fine and medium distinct light brownish gray mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in brownish part; few fine roots in seams; few fine brown and black concretions; few fine pebbles; patchy clay films on faces of peds; 1/2- to 1-inch seams of grayish silt loam between prisms; very strongly acid; gradual wavy boundary.

B'x3—52 to 70 inches; mottled yellowish brown (10YR 5/6), dark brown (7.5YR 4/4), and red (2.5YR 4/8) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 60 percent of the mass; 1/2- to 1-inch seams of grayish silty clay loam between prisms; patchy clay films on faces of peds; few fine to coarse pebbles; very strongly acid.

Solum thickness is more than 60 inches. Depth to the fragipan ranges from 16 to 29 inches. Reaction ranges from strongly acid to very strongly acid throughout.

The A horizon is dark grayish brown, dark brown, or brown.

The B horizon is yellowish brown, light yellowish brown, or brown and has light brownish gray or pale brown mottles, or it is mottled in shades of brown, yellow, or gray. Mottles having chroma of 2 or less are within 16 inches of the surface. Between a depth of 10 inches and the upper boundary of the fragipan, clay content averages 12 to 18 percent and content of fine sand and coarser is less than 15 percent. There are a few thin clay films in pores in some horizons. The A'2 part of the A'2&B'x1 horizon is light brownish gray, grayish brown, or pale brown. Texture is silt or silt loam; clay content is less than in browner areas.

The B'x horizon has a yellowish brown, brittle matrix and contains few to many mottles having chroma of 2 or less, or it is mottled in shades of brown, gray, and red. There are no to common brown and black concretions and pebbles.

Pikeville series

The Pikeville series consists of well drained soils that formed in loamy deposits high in gravel content. Slopes range from 5 to 12 percent.

Pikeville soils are associated with Ruston, Saffell, and Smithdale soils. Pikeville soils differ from Ruston, Saffell, and Smithdale soils by having gravel content of 15 percent or more in the Bt horizon.

Typical pedon of Pikeville sandy loam, 5 to 8 percent slopes, eroded, in an area of cropland 20 feet north of road, NE1/4NW1/4 sec. 25, T. 16 S., R. 18 W.

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; friable; common fine roots; 15 to 20 percent gravel by volume; strongly acid; clear smooth boundary.

B21t—4 to 21 inches; yellowish red (5YR 5/6) sandy clay loam; moderate fine and medium subangular blocky structure; firm; few fine roots; 15 to 25 percent gravel by volume; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—21 to 52 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; moderate fine and medium subangular blocky structure; firm; few fine roots; 30 to 35 percent gravel by volume; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—52 to 70 inches; red (2.5YR 4/6) gravelly loam; weak fine subangular blocky structure; friable; bridging and coating of sand grains and gravel with clay and oxides; 35 to 50 percent gravel by volume; very strongly acid.

Solum thickness is more than 7 feet. Depth to horizons having gravel content of more than 25 percent ranges from 21 to 40 inches. Gravel content ranges to as much as 75 percent in the lower part of the solum. Reaction ranges from strongly acid to very strongly acid.

The A horizon is dark yellowish brown, dark grayish brown, or very dark grayish brown. Texture is fine sandy loam, sandy loam, or loam.

The B21t horizon is yellowish red or red. Texture is sandy clay loam, clay loam, or loam. Clay content ranges from 18 to 30 percent, and gravel content, from 0 to 25 percent.

The B22t and B23t horizons are red, yellowish red, or strong brown. Texture is gravelly sandy clay loam, gravelly clay loam, gravelly loam, or gravelly sandy loam.

Prentiss series

The Prentiss series consists of moderately well drained soils that formed in loamy material on terraces. Slopes range from 0 to 5 percent.

Prentiss soils are associated with Cahaba, Latonia, and Steens soils. Prentiss soils differ from Cahaba and Latonia soils by having a fragipan. They have a lighter textured and yellower subsoil than Cahaba soils. Prentiss

soils are better drained than Steens soils, and they lack mottles having chroma of 2 or less within 16 inches of the surface.

Typical pedon of Prentiss loam, 0 to 2 percent slopes, about 5 miles north of Columbus, 1.5 miles east of U.S. Highway 45 on west side of paved road, 330 feet west of the southeast corner of NW1/4NE1/4 sec. 22, T. 17 S., R. 8 W.

Ap—0 to 7 inches; dark brown (10YR 4/3) loam; weak fine granular structure; friable; common fine roots; strongly acid; abrupt smooth boundary.

B21—7 to 20 inches; yellowish brown (10YR 5/6) loam; weak fine and medium subangular blocky structure; friable; common fine roots; few fine and medium root channels filled with material from above; sand grains bridged and coated with clay; very strongly acid; gradual smooth boundary.

B22—20 to 26 inches; yellowish brown (10YR 5/4) loam; weak fine and medium subangular blocky structure; friable; common fine roots; sand grains coated and bridged with clay; few pockets of uncoated sand grains; very strongly acid; clear smooth boundary.

Bx1—26 to 46 inches; mottled yellowish brown (10YR 5/4), dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/8), and light gray (2.5Y 7/2) sandy loam; weak coarse prismatic structure parting to weak fine subangular blocky; firm, compact and brittle in about 70 percent of the volume; few fine roots; common fine pores; some sand grains bridged by clay; gray seams bordering faces of prisms are less clayey than surrounding material; few to common fine and medium brown and black concretions; few fine pebbles; very strongly acid; gradual wavy boundary.

Bx2—46 to 54 inches; mottled dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4), yellowish red (5YR 4/8), and light gray (10YR 7/2) loam; weak coarse prismatic structure parting to weak fine and medium subangular blocky; firm, brittle and compact in about 70 percent of the volume; common fine voids; few patchy clay films; gray seams of less clayey material between faces of prisms; very strongly acid; gradual wavy boundary.

Bx3—54 to 73 inches; mottled yellowish red (5YR 4/8), yellowish brown (10YR 5/4), and light gray (10YR 7/2) loam; weak coarse prismatic structure parting to weak fine and medium subangular blocky; firm, brittle and compact in about 70 percent of the volume; few fine voids; patchy clay films; gray seams of less clayey material between faces of prisms; very strongly acid.

Depth to the fragipan ranges from 19 to 26 inches. Some pedons contain few to many brown and black concretions. Reaction is strongly acid or very strongly acid throughout.

The Ap horizon is dark brown, dark grayish brown, or dark yellowish brown.

The B2 horizon is yellowish brown, light yellowish brown, or brown. It does not contain mottles having chroma of 2 or less within 16 inches of the surface. Texture of the B2 horizon is loam or silt loam. Between a depth of 10 inches and the upper boundary of the fragipan, clay content averages between 12 and 18 percent and more than 15 percent of the sand fraction is coarser than very fine. Clay films are not evident on both vertical and horizontal ped faces.

The Bx horizon is dominantly in shades of brown and has grayish mottles, or it is mottled in shades of brown, gray, and red. Texture is loam or silt loam; clay content in some pedons is more than 18 percent.

Rosella series

The Rosella series consists of poorly drained soils on broad flats and in depressions. These soils formed in loamy material. Slopes range from 0 to 2 percent.

Rosella soils are associated with Steens and Guyton soils. Rosella soils are not so well drained as the somewhat poorly drained Steens soils. Rosella and Guyton soils occur in similar landscapes and have similar drainage, but Rosella soils differ from Guyton soils by having a natric horizon.

Typical pedon of Rosella silt loam, in a wooded area about 5.5 miles north of Columbus, 0.3 mile east of U.S. Highway 45, 50 feet north of Perkins Road, SW1/4NE1/4 sec. 21, T. 17 S., R. 18 W.

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam; common fine faint grayish brown mottles; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

A2g—2 to 10 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; common fine and medium roots; few fine brown and black concretions; very strongly acid; clear irregular boundary.

B21tg—10 to 22 inches; grayish brown (10YR 5/2) loam; common fine and medium distinct light brownish gray (10YR 6/2) and few fine and medium distinct yellowish brown (10YR 5/4) mottles; weak medium prismatic structure parting to moderate fine and medium subangular blocky; firm; common fine roots; few fine brown and black concretions; dark gray (10YR 4/1) clay films on some faces of peds; light gray (10YR 7/2) very fine sand in pockets and tongues; few thin dark gray clayey lenses in tongues; very strongly acid; clear irregular boundary.

B22tg—22 to 35 inches; gray (10YR 5/1) loam; common fine and medium distinct grayish brown (10YR 5/2) and brown (10YR 5/3) mottles; weak medium prismatic structure parting to moderate fine and medium subangular blocky; firm; few fine roots and brown and black concretions; dark gray (10YR 4/1) clay

films on some faces of peds; light brownish gray (10YR 6/2) very fine sand in tongues and pockets; very strongly acid; gradual wavy boundary.

B23tg—35 to 48 inches; gray (10YR 5/1) loam; common fine and medium distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots and brown and black concretions; dark gray (10YR 4/1) clay films on some faces of peds; light brownish gray (10YR 6/2) very fine sand in tongues and pockets; very strongly acid; gradual wavy boundary.

B24t—48 to 63 inches; gray (10YR 5/1) loam; many medium distinct yellowish brown (10YR 5/6) and reddish yellow (7.5YR 7/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; few streaks and pockets of light brownish gray (10YR 6/2) very fine sand; very strongly acid; gradual wavy boundary.

B25t—63 to 80 inches; light brownish gray (10YR 6/2) loam; many medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; firm; few fine roots; few patchy clay films; very strongly acid.

Solum thickness ranges from 60 to 80 inches. Reaction is strongly acid or very strongly acid throughout the soil. Depth to the natric horizon ranges from 24 to 36 inches.

The A1 or Ap horizon is grayish brown, dark grayish brown, gray, or light brownish gray. The A2 horizon is gray, light gray, or brownish gray.

The B horizon is dominantly gray, light gray, light brownish gray, or grayish brown and has few to many mottles in shades of brown and red. Texture of the B horizon is silt loam, loam, clay loam, or silty clay loam. Clay content of the upper 20 inches of the B horizon ranges from 18 to 34 percent.

Ruston series

The Ruston series consists of well drained soils that formed in loamy material. Slopes range from 5 to 8 percent.

Ruston soils are associated with Pikeville and Smithdale soils. Ruston soils differ from Pikeville soils by having a thicker solum and by having gravel content of less than 15 percent in the subsoil. Ruston soils have a bisequal profile, which Smithdale soils lack.

Typical pedon of Ruston fine sandy loam, 5 to 8 percent slopes, eroded, in a wooded area about 1 mile north of Mississippi Highway 12 at Country Club, on east bank of blacktop road in front of church, SW1/4SE1/4 sec. 34, T. 17 S., R. 18 W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; common fine faint brown mottles; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

A2—3 to 13 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; few fine brown concretions; strongly acid; clear wavy boundary.

B2t—13 to 24 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine brown and black concretions; continuous clay films on faces of peds; very strongly acid; clear wavy boundary.

B&A'2—24 to 32 inches; yellowish red (5YR 4/6) loam; moderate medium subangular blocky structure; firm; common fine and medium pockets of yellowish brown (10YR 5/4) sandy loam A'2 material that makes up about 20 percent of the horizon; few fine roots; patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B'21t—32 to 52 inches; red (2.5YR 4/6) sandy clay loam; common fine and medium distinct spots and streaks of strong brown (7.5YR 5/8); moderate coarse blocky structure parting to moderate medium subangular blocky; firm; few fine roots; strong brown (7.5YR 5/6) very fine sand on some peds; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B'22t—52 to 68 inches; yellowish red (5YR 4/8) sandy clay loam; common fine and medium distinct spots of olive (5Y 5/6) sandy loam; moderate medium subangular blocky structure; firm; few fine roots; few fine mica flakes; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B'23t—68 to 80 inches; yellowish red (5YR 4/8) loam; few fine and medium spots of olive (5Y 5/6); weak medium subangular blocky structure; friable; few fine roots; few fine mica flakes; patchy clay films on faces of peds; sand grains are bridged and coated; very strongly acid.

Gravel content throughout the soil ranges from 0 to about 15 percent. Reaction is strongly acid or very strongly acid throughout.

The A1 horizon, where present, is dark grayish brown or dark brown. The Ap and A2 horizons are dark grayish brown, dark brown, or yellowish brown.

The B2t horizon is yellowish red or red. Texture is sandy clay loam, loam, or clay loam. Clay content in the B2t horizon is 18 to 30 percent, and content of sand coarser than very fine is more than 15 percent.

The B't horizon is yellowish red or red and has mottles in shades of brown and olive. Clay content decreases from the upper part of the B2t horizon to the B&A'2 horizon but increases in the B'2 horizon. The A'2 horizon is in shades of brown.

Saffell series

The Saffell series consists of well drained soils that formed in loamy material high in gravel content. Slopes range from 15 to 35 percent.

Saffell soils are associated with Pikeville, Smithdale, and Sweatman soils. Saffell soils differ from Pikeville soils by having pebble content of more than 35 percent, by volume, in the upper part of the B horizon. Smithdale and Sweatman soils have pebble content of less than 15 percent, by volume, in the B horizon. Saffell soils have a thinner solum than Pikeville and Smithdale soils and a lighter textured B horizon than Sweatman soils.

Typical pedon of Saffell gravelly sandy loam, in an area of Smithdale-Saffell complex, 15 to 35 percent slopes, about 3.5 miles north of Caledonia, 70 feet east of main road, east bank of driveway, NW1/4NW1/4 sec. 27, T. 15 S., R. 17 W.

A1—0 to 6 inches; dark brown (10YR 4/3) gravelly sandy loam; weak fine granular structure; friable; many fine roots; about 40 percent by volume pebbles; strongly acid; clear smooth boundary.

A2—6 to 12 inches; yellowish brown (10YR 5/4) gravelly loam; weak fine granular structure; friable; common fine roots; about 35 percent by volume pebbles; strongly acid; clear wavy boundary.

B21t—12 to 23 inches; yellowish red (5YR 5/6) gravelly sandy clay loam; weak fine and medium subangular blocky structure; firm; few fine and medium roots; about 40 percent by volume pebbles; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—23 to 58 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; moderate fine and medium subangular blocky structure; firm; few fine and medium roots; about 40 percent by volume pebbles; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

C—58 to 70 inches; yellowish red (5YR 4/8) gravelly sandy loam; massive; firm; common fine and medium pale brown (10YR 6/3) spots; few fine roots; about 50 percent by volume pebbles; very strongly acid.

Solum thickness ranges from 38 to 60 inches, Reaction ranges from strongly acid to very strongly acid throughout.

The A horizon is dark grayish brown, dark brown, brown, light yellowish brown, or yellowish brown. The fine earth texture is sandy loam or loam. Pebble content ranges from 5 to 45 percent.

The B2 horizon is yellowish red, red, or strong brown. Texture is gravelly sandy clay loam or gravelly loam. The upper 20 inches of the B horizon has clay content of 16 to 28 percent. Pebble content ranges from 35 to 55 percent.

The C horizon is strong brown, yellowish red, or red. Texture is gravelly sandy loam or gravelly loamy sand. Pebble content ranges from 40 to 60 percent. Some pedons contain sandstone fragments as much as 25 centimeters across.

Savannah series

The Savannah series consists of moderately well drained soils that formed in loamy material on terraces. Slopes range from 0 to 8 percent.

Savannah soils are associated with Caledonia, Paden, and Pheba soils. Savannah soils differ from Caledonia soils by having a fragipan. In addition, Caledonia soils are well drained. Savannah and Paden soils are similar in internal drainage, but Paden soils lack clay films in the upper part of the B horizon and have an A'2 horizon above the fragipan. Savannah soils are better drained than Pheba soils and lack grayish mottles within 16 inches of the surface.

Typical pedon of Savannah silt loam, 2 to 5 percent slopes, in an area of pasture about 6.5 miles northeast of Columbus, 2,300 feet north of Mississippi Highway 12, 180 feet east of blacktop road, 45 feet north of fence, SW1/4SW1/4 sec. 4, T. 17 S., R. 17 W.

Ap—0 to 5 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; few fine brown and black concretions; few spots of yellowish brown B1 material; slightly acid; clear smooth boundary.

B21t—5 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; few fine roots; few fine brown and black concretions; few worm and root holes filled with Ap material; medium acid; clear wavy boundary.

B22t—11 to 21 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; few fine brown and black concretions; patchy clay films on faces of peds; few fine pores; strongly acid; clear smooth boundary.

Bx1—21 to 36 inches; yellowish brown (10YR 5/6) loam; common fine and medium distinct brownish gray (10YR 6/2) and dark brown (7.5YR 4/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 75 percent of the mass; few fine roots in seams and between prisms; few fine pores; few fine and medium pebbles and brown and black concretions; patchy clay films on faces of peds and in cracks; narrow vertical seams of light brownish gray (10YR 6/2) fine sandy loam; very strongly acid; gradual wavy boundary.

Bx2—36 to 58 inches; yellowish brown (10YR 5/6) loam; common fine and medium distinct light brownish gray (10YR 6/2) and few fine and medium prominent red (2.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular

blocky; firm, compact and brittle in 70 percent of the mass; few fine roots in seams and between prisms; few fine pores; few fine and medium pebbles and brown and black concretions; patchy clay films on faces of peds and in cracks; vertical seams less than 1 inch thick of light brownish gray (10YR 6/2) sandy clay loam; very strongly acid; gradual wavy boundary.

Bx3—58 to 75 inches; mottled yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), gray (10YR 6/1), and red (2.5YR 4/6) loam; weak coarse prismatic structure parting to moderate medium subangular blocky and blocky; firm, compact and brittle in 70 percent of the mass; few fine brown and black concretions; few fine and medium pebbles; patchy clay films on faces of peds; vertical seams less than 1 inch thick of gray (10YR 6/1) sandy clay loam; very strongly acid.

Depth to the fragipan ranges from 18 to 28 inches. Some pedons have gravel content of as much as 10 percent in the solum. Reaction ranges from strongly acid to very strongly acid throughout.

The Ap horizon is brown, dark grayish brown, dark brown, or dark yellowish brown.

The B2t horizon is strong brown or yellowish brown. Mottles having chroma of 2 or less are below a depth of 16 inches. Texture of the B2t horizon is loam or silt loam. Clay content is about 18 to 30 percent, and content of sand coarser than very fine is more than 15 percent.

The Bx horizon is dominantly in shades of brown and red and has grayish mottles, or it is mottled in shades of brown, red, and gray. Texture is loam or sandy clay loam.

Sessum series

The Sessum series consists of poorly drained soils that formed in clayey material. Slopes range from 0 to 2 percent.

Sessum soils are associated with Kipling and Vaiden soils. Sessum soils differ from Kipling and Vaiden soils by having a dominantly gray subsoil. They also differ from Vaiden soils by having clay content of less than 60 percent in the 10- to 40-inch control section and by lacking intersecting slickensides within 40 inches of the surface.

Typical pedon of Sessum silty clay loam, in an area of pasture about 1 mile north of Mayhew, 800 yards east of main road, 60 feet south of gravel road, and 4 feet east of fence, NW1/4SE1/4 sec. 21, T. 19 N., R. 16 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; many medium faint dark brown (10YR 3/3) mottles; moderate fine and medium granular structure; friable; common fine roots; few fine brown and black concretions; very strongly acid; clear smooth boundary.

B21tg—5 to 10 inches; grayish brown (2.5Y 5/2) clay; many fine and medium distinct yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4) mottles; moderate fine and medium subangular and angular blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; few cracks and worm holes filled with Ap material; pressure faces or clay films on faces of peds; very strongly acid; clear wavy boundary.

B22tg—10 to 24 inches; grayish brown (2.5Y 5/2) clay; many fine and medium distinct yellowish brown (10YR 5/6) mottles; weak medium prismatic structure parting to moderate fine and medium subangular and angular blocky; firm, very plastic and very sticky; few fine and medium roots; few fine brown and black concretions; pressure faces or clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—24 to 42 inches; light brownish gray (10YR 6/2) clay; many fine and medium distinct light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/6) mottles; moderate coarse blocky structure parting to weak medium subangular and angular blocky; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; pressure faces or clay films on some faces of peds; few fine and medium slickensides that do not intersect; very strongly acid; gradual wavy boundary.

C1—42 to 68 inches; mottled light olive gray (5Y 6/2), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) clay; common medium to coarse slickensides that intersect, breaks to blocky and wedge-shaped peds; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; very strongly acid; gradual wavy boundary.

C2—68 to 80 inches; mottled yellowish brown (10YR 5/6) and light olive gray (5Y 6/2) clay; massive; firm, very plastic and very sticky; few fine brown and black concretions; very strongly acid.

Solum thickness ranges from 38 to 50 inches. Reaction ranges from strongly acid to very strongly acid in the upper part of the solum and from very strongly acid to medium acid in the lower part.

The A horizon is dark grayish brown, dark brown, or brown.

The Bt horizon is grayish brown, light brownish gray, or gray and has few to many mottles in shades of brown. More than 60 percent of the matrix in all horizons between the A1 or Ap horizon and a depth of 30 inches has these colors. Texture is silty clay loam, silty clay, or clay; clay content ranges from 38 to 55 percent. Slickensides are present in some horizons but do not intersect within 40 inches of the surface.

The C horizon is similar in color to the Bt horizon and is light olive gray in places as well, or it is mottled in shades of gray, brown, and red. Texture is silty clay or clay. Few to many intersecting slickensides are present in most horizons.

Smithdale series

The Smithdale series consists of well drained soils that formed in loamy material. Slopes range from 8 to 35 percent.

Smithdale soils are associated with Ruston, Saffell, and Sweatman soils. Smithdale soils differ from Ruston soils by lacking a bisequal profile. They differ from Saffell soils by having a deeper solum and much less gravel in the profile. They have a thicker solum and lighter texture in the upper part of the subsoil than the clayey Sweatman soils.

Typical pedon of Smithdale fine sandy loam, 17 to 35 percent slopes, in a wooded area about 9 miles southeast of Columbus, 1 mile east of Mississippi Highway 69 and Union Church, 500 feet west of Alabama State line, 350 feet north of gravel road, SE1/4NE1/4 sec. 27, T. 18 N., R. 17 W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—3 to 15 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; common fine roots; few fine and medium pebbles; strongly acid; clear smooth boundary.

B21t—15 to 42 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; firm, slightly plastic; few fine roots; few fine and medium pebbles; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—42 to 56 inches; yellowish red (5YR 4/6) loam; common fine and medium distinct strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—56 to 80 inches; yellowish red (5YR 5/8) sandy loam; many fine and medium distinct strong brown (7.5YR 5/8) and light yellowish brown (10YR 6/4) mottles; weak fine and medium subangular blocky structure; friable; thin patchy clay films on faces of some peds; sand grains are bridged and coated with clay and oxides; few fine mica flakes; few fine pockets of uncoated sand grains; very strongly acid.

There are no to common mica flakes. Mica flakes are more numerous in the lower horizons. Gravel content throughout ranges from 0 to about 10 percent. Reaction is strongly acid or very strongly acid throughout.

The A1 horizon is dark grayish brown, dark brown, or brown. The A2 horizon, where present, is yellowish brown or dark brown.

The upper part of the Bt horizon is yellowish red or red. Texture is clay loam, sandy clay loam, or loam. The upper 20 inches of the Bt horizon has clay content of 18 to 33 percent, and content of sand coarser than very fine is more than 15 percent. The lower part of the Bt horizon is yellowish red or red and has few to many spots and streaks of pale brown, strong brown, and yellowish brown, or it is mottled in shades of red and brown. Texture of the lower part of the Bt horizon is loam, sandy loam, or sandy clay loam. There are few to many spots and pockets of uncoated sand grains in the lower part of the Bt horizon.

Steens series

The Steens series consists of somewhat poorly drained soils that formed in loamy material. Slopes range from 0 to 2 percent.

Steens soils are associated with Prentiss, Rosella, and Guyton soils. Steens soils differ from Prentiss soils by having mottles with chroma of 2 or less within 16 inches of the surface and by lacking a fragipan. Steens soils are better drained than Rosella soils and lack the high sodium content in the subsoil. They are better drained than Guyton soils and lack the dominantly gray subsoil.

Typical pedon of Steens fine sandy loam, in a wooded area about 3 miles southeast of intersection of U.S. Highway 82 and Mississippi Highway 69, 1,000 feet southwest of hard-surfaced road, and 30 feet west of field road, NE1/4NE1/4 sec. 36, T. 18 S., R. 18 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; common fine faint grayish brown mottles; weak fine granular structure; very friable; many fine roots; few fine brown and black concretions; very strongly acid; clear smooth boundary.

A21g—4 to 7 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; friable; common fine roots; few fine brown and black concretions; strongly acid; clear wavy boundary.

A22g—7 to 15 inches; light gray (10YR 7/2) fine sandy loam; common fine and medium distinct yellowish brown (10YR 5/6) mottles; mostly massive, some weak thin platy structure; firm; few fine roots and brown and black concretions; few iron stains on faces of peds; medium acid; clear wavy boundary.

B21t—15 to 20 inches; mottled yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) loam; few fine distinct strong brown mottles; moderate medium subangular blocky structure; firm; few fine roots and brown and black concretions; patchy clay films on faces of some peds; few pockets and interfingerings of very fine sand; strongly acid; clear wavy boundary.

B22tg—20 to 35 inches; grayish brown (2.5Y 5/2) loam; common fine and medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; weak medium prismatic structure parting to moderate fine and medium subangular and angular blocky; firm; few fine roots and brown and black concretions; patchy clay films on faces of some peds; some pockets and interfingerings of light brownish gray (10YR 6/2) very fine sand; gray (10YR 5/1) clay films on faces of some peds and in seams; strongly acid; gradual wavy boundary.

B23tg—35 to 65 inches; gray (10YR 5/1) loam; many fine to coarse strong brown (7.5YR 5/6) and grayish brown (2.5YR 5/2) mottles; weak medium prismatic structure parting to moderate fine and medium angular and subangular blocky; firm; few fine roots and brown and black concretions; patchy clay films on faces of some peds; few pockets and coats of light yellowish brown (10YR 6/4) very fine sand; strongly acid.

Solum thickness is more than 60 inches. Reaction ranges from very strongly acid through slightly acid in the A horizon and from very strongly acid through medium acid in the B horizon.

The A1 horizon is dark grayish brown, dark brown, or very dark grayish brown.

The Ap or A2 horizon is grayish brown, light brownish gray, light gray, pale brown, brown, or dark brown.

The B1 horizon, where present, is mottled in shades of brown and gray. Texture is loam, silt loam, or sandy loam.

The B21t horizon is yellowish brown, brown, or dark yellowish brown and has common to many mottles with chroma of 2 or less, or it is mottled in shades of brown and gray. Texture is loam, sandy clay loam, or clay loam.

The Btg horizon is grayish brown, gray, light brownish gray, and dark gray. There are few to many mottles in shades of brown, red, and yellow. The lower part of the Bt horizon is mottled in shades of brown and gray in some pedons. Texture is loam, sandy clay loam, or clay loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 20 to 35 percent. There are no to many brown and black concretions.

Sumter series

The Sumter series consists of well drained soils that formed in marly clays over calcareous chalk. Slopes range from 2 to 12 percent.

Sumter soils are associated with Binnsville, Brooksville, Demopolis, and Okolona soils. Sumter soils have a lighter colored surface layer than Binnsville soils and are deeper than 20 inches to firm chalk. Sumter soils differ from Brooksville and Okolona soils by lacking a thick, dark A horizon and slickensides within a depth of 40 inches. Sumter and Demopolis soils have similarly colored surface layers, but Demopolis soils have firm chalk within a depth of 16 inches.

Typical pedon of Sumter silty clay loam, 5 to 12 percent slopes, eroded, in an area of pasture, about 2 miles west of U.S. Highway 45, 0.75 mile northeast of Bent Oak Community, 100 feet west of section line on north bank of blacktop road, SE1/4NE1/4 sec. 8, T. 18 N., R. 17 E.

Ap—0 to 7 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine granular structure; friable, plastic and sticky; many fine roots; few fine brown and black concretions; common worm casts; calcareous; mildly alkaline; clear smooth boundary.

B21—7 to 12 inches; light yellowish brown (2.5Y 6/4) silty clay; moderate fine subangular blocky structure; friable, plastic and sticky; common fine roots; few fine brown and black concretions; few fine white lime nodules; common worm and root holes filled with dark grayish brown Ap material; calcareous; mildly alkaline; clear wavy boundary.

B22—12 to 34 inches; pale yellow (2.5Y 7/4) clay; common fine faint light yellowish brown mottles; moderate fine and medium subangular blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; common fine and medium white lime nodules; calcareous; mildly alkaline; clear wavy boundary.

C1—34 to 46 inches; mottled light yellowish brown (2.5Y 6/4), light gray (2.5Y 7/2), and brownish yellow (10YR 6/6) marly silty clay; massive; firm, slightly plastic; few fine roots; few fine brown and black concretions; few fine white lime nodules, calcareous; moderately alkaline; gradual wavy boundary.

C2—46 to 70 inches; mottled light olive gray (5Y 6/2), brownish yellow (10YR 6/6), and light yellowish brown (2.5Y 6/4) marly clay; coarse blocky and weak thin and medium platy structure; firm; few fine roots; few fine white lime nodules; calcareous; moderately alkaline.

Solum thickness ranges from 20 to 40 inches. Reaction is mildly alkaline or moderately alkaline. The calcium carbonate equivalent is 40 percent or more.

The Ap or A1 horizon is dark grayish brown, grayish brown, or olive gray. Texture is silty clay loam or silty clay.

The B2 horizon is light yellowish brown, light olive brown, or olive brown. Some pedons have few to common mottles in shades of brown and yellow. Texture is silty clay loam, silty clay, or clay. Noncarbonate clay content ranges from 18 to 30 percent. The B horizon has few to common soft limy spots and hardened lime nodules.

The C horizon is pale yellow, grayish brown, light brownish gray, or brown. It is splotched or mottled in shades of brown, yellow, and gray. The C horizon is

marly clay or chalk which can be cut with a spade. In some pedons, the C horizon is hard chalk.

Sweatman series

The Sweatman series consists of well drained soils that formed in stratified clayey material and loamy material. Slopes range from 17 to 35 percent.

Sweatman soils are associated with Saffell and Smithdale soils. They are finer textured in the upper part of the B horizon than Saffell and Smithdale soils. Also, Sweatman soils differ from Saffell soils by lacking coarse fragments.

Typical pedon of Sweatman sandy loam, in an area of Smithdale-Sweatman complex, 17 to 35 percent slopes, 2.5 miles north of the intersection of U.S. Highways 82 and 45 in Columbus, 0.5 mile west of U.S. Highway 45 on north side of road, SW1/4NW1/4 sec. 32, T. 17 S., R. 18 W.

A1—0 to 7 inches; dark brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

B21t—7 to 26 inches; reddish brown (2.5YR 4/4) silty clay; strong medium angular and subangular blocky structure; firm, plastic; few fine and medium roots; continuous clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—26 to 40 inches; red (2.5YR 4/6) clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm, plastic; few fine and medium roots; clay films around most peds; very strongly acid; clear wavy boundary.

B3—40 to 55 inches; red (2.5YR 4/6) loam; many medium distinct yellowish brown (10YR 5/4) mottles; weak coarse angular blocky structure; firm; few fine and medium roots; patchy clay films; few fine mica flakes; very strongly acid; clear wavy boundary.

C—55 to 80 inches; olive (5Y 5/4) fine sandy loam; many fine and medium dark brown (7.5YR 4/4) mottles; massive; few fine roots; some horizontal streaks of yellowish brown; few fine mica flakes; very strongly acid.

Content of thin mica flakes increases with depth. There are none in the upper part of the solum and many in the C horizon. Reaction ranges from strongly acid to very strongly acid throughout.

The A1 horizon is very dark grayish brown, brown, dark brown, or dark grayish brown. The A2 horizon, where present, is yellowish brown or dark yellowish brown.

The B2t horizon is red, yellowish red, or reddish brown. In some pedons it contains mottles in shades of red or brown. Texture is clay, clay loam, or silty clay. Clay content in the upper 20 inches of the Bt horizon ranges from 35 to 54 percent. The B3 horizon is red, yellowish red, or strong brown and has mottles in shades of red, brown, and gray, or it is mottled in shades of red, brown, and gray. Texture is loam or sandy loam.

The C horizon is strong brown, brown, or olive and has mottles in shades of red and gray, or it is mottled in shades of brown, gray, olive, and red. Texture is sandy loam, fine sandy loam, or loamy sand.

Sweatman soils as mapped in Lowndes County are taxadjuncts to the Sweatman series because they lack strata of shale in the lower part of the solum. Use and management, however, are similar to those of Sweatman soils.

Tuscumbia series

The Tuscumbia series consists of poorly drained soils on flood plains. These soils formed in fine textured alluvium. Slopes range from 0 to 2 percent.

Tuscumbia soils are associated with Catalpa and Leeper soils. Tuscumbia soils differ from Catalpa and Leeper soils by having a dominantly gray subsoil. They also differ from Catalpa soils by lacking the dark A horizon more than 10 inches thick.

Typical pedon of Tuscumbia silty clay, in an area of pasture about 400 feet south of gravel road, NE1/4SE1/4 sec. 2, T. 18 N., R. 17 E.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay; few fine faint dark grayish brown mottles; massive; firm, plastic and sticky; common fine roots; common fine brown and black concretions; dark brown stains on some peds; mildly alkaline; clear smooth boundary.

B21g—6 to 13 inches; gray (10YR 5/1) silty clay; common fine and medium distinct light olive brown (2.5Y 5/4) mottles; moderate fine and medium subangular blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; mildly alkaline; clear smooth boundary.

B22g—13 to 28 inches; gray (10YR 6/1) silty clay; common fine and medium faint gray (10YR 5/1) and common fine and medium distinct light olive brown (2.5Y 5/6) mottles; moderate medium subangular blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; few shiny pressure faces on some peds; mildly alkaline; gradual wavy boundary.

B23g—28 to 45 inches; gray (10YR 6/1) silty clay; common fine and medium distinct yellowish brown (10YR 5/6) and light olive brown (2.5Y 5/6) mottles; moderate medium subangular blocky structure; firm, plastic and sticky; few fine roots; few fine brown and black concretions; few shiny pressure faces on some peds; mildly alkaline; gradual wavy boundary.

Solum thickness exceeds 50 inches. Reaction ranges from medium acid to mildly alkaline. There are no to common brown and black concretions.

The A horizon is very dark grayish brown or dark grayish brown.

The Bg horizon is gray, dark gray, or light brownish gray and has few to many mottles in shades of brown and yellow. Texture is silty clay or clay.

The B3 horizon, where present, is similar in color to the Bg horizon, or it is mottled in shades of gray, brown, and yellow. Texture is sitly clay or clay.

Vaiden series

The Vaiden series consists of somewhat poorly drained soils that formed in clays over marly clays and calcareous chalk. Slopes range from 0 to 8 percent.

Vaiden soils are associated with Binnsville, Brooksville, Kipling, and Sessum soils. Vaiden soils differ from Binnsville soils by lacking the dark A horizon and the firm chalk within 20 inches of the surface. Vaiden soils are more acid in the upper part of the solum than Brooksville soils and lack the thick, dark A horizon. They differ from Kipling and Sessum soils by having clay content of more than 60 percent in the upper 20 inches of the B horizon. Also, Sessum soils have a dominantly gray subsoil.

Typical pedon of Vaiden silty clay, 0 to 2 percent slopes, in an area of cropland about 2 miles east of U.S. Highway 45E, 350 feet south of hard-surfaced road between U.S. Highway 45E and Trinity, NW1/4NE1/4 sec. 15, T. 17 N., R. 17 E.

Ap—0 to 5 inches; dark brown (10YR 4/3) silty clay; moderate fine granular structure; friable, plastic and sticky; common fine roots; strongly acid; clear smooth boundary.

B21t—5 to 12 inches; yellowish brown (10YR 5/4) clay; common medium distinct yellowish red (5YR 4/6) and light brownish gray (2.5Y 6/2) mottles; moderate fine and medium subangular and angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few worm and root holes filled with Ap material; very strongly acid; clear wavy boundary.

B22t—12 to 23 inches; mottled yellowish brown (10YR 5/8), light brownish gray (2.5Y 6/2), and red (2.5YR 4/6) clay; moderate fine and medium subangular and angular blocky structure; firm, very plastic and very sticky; few fine roots; few fine brown and black concretions; few fine slickensides that do not intersect; very strongly acid; gradual wavy boundary.

C1—23 to 39 inches; mottled light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/8) clay; common intersecting slickensides that part to moderate fine and medium angular blocky structure; firm, very plastic and very sticky; some grooved shiny faces on slickensides; few fine roots; few fine to coarse pitted nodules of calcium carbonate; neutral; gradual wavy boundary.

C2—39 to 60 inches; light olive brown (2.5Y 5/4) clay; common fine and medium distinct olive gray (5Y 5/2) and yellowish brown (10YR 5/6) mottles; many large intersecting slickensides that part to weak fine angular blocky structure; firm; some grooved shiny faces on slickensides; few fine roots; few fine to coarse pitted nodules of calcium carbonate; mildly alkaline; gradual wavy boundary.

C3—60 to 76 inches; mottled gray (10YR 5/1), light olive brown (2.5Y 5/4), and olive brown (2.5Y 4/4) clay; many large intersecting slickensides that part to wedge-shaped peds; firm, very plastic and very sticky; few fine roots; mildly alkaline.

Depth to the alkaline material ranges from 3 to 6 feet. Reaction of the upper part of the solum ranges from medium acid to very strongly acid. The lower part of the C horizon ranges from very strongly acid to moderately alkaline. There are intersecting slickensides at a depth of 24 inches or more. There are few to many brown and black concretions, and content of pitted nodules of calcium carbonate in the C horizon ranges from few to many.

The A horizon is dark grayish brown, dark brown, or very dark grayish brown.

The B21t horizon has matrix color of yellowish brown or dark yellowish brown, or it is mottled in shades of brown, gray, and red. Texture is clay or silty clay.

The B22t horizon has matrix color of yellowish brown or dark yellowish brown and has mottles in shades of gray, brown, and red, or it is mottled in shades of brown, gray, and red. Texture is clay. Few to many mottles having chroma of 2 or less are present in the upper 10 inches of the Bt horizon. Clay content in the upper 20 inches of the Bt horizon is 60 to 70 percent.

The C horizon is mottled in shades of gray, brown, and yellow, or it has a matrix of gray and mottles in shades of brown and yellow. Texture is clay or silty clay.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*15*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 21, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Paleudults (*Pale*, meaning old with strongly expressed horizons, plus *udults*, the suborder of Ultisols that have a udic humid moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Paleudults.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-loamy, siliceous, thermic, Typic Paleudults.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition. An example is the Smithdale series; a member of the fine-loamy, siliceous, thermic family of Typic Paleudults.

Formation of the soils

Soil ranges in thickness from a few inches in some locations to several feet in others. It varies in color, texture, fertility, and other properties, although it is mainly a mixture of minerals, organic matter, water, and air.

In the following paragraphs, the factors that affect the formation of soils and the processes of soil formation are described.

Factors of soil formation

Different kinds of soils result from the action and interaction of climate and living organisms acting on soil parent materials as conditioned by relief and drainage over a long period of time. A soil at any location has been formed under the influence of these five factors: parent material, climate, relief and drainage, living organisms, and time. The relative influence of each factor varies with the environment from place to place.

In Lowndes County, parent materials have had a strong influence on the nature of the soils. This is evident in the differences between soils in the two distinct Land Resource Areas in the county. There are also visible and measurable soil properties that reflect the influence of relief and drainage, such as the gray colors in the low terrace phase of Guyton soils.

Soil development has two major steps, or parts. First is accumulation or deposition of soil materials, and next is the formation of horizons to form definite soil profiles. The horizons emerge slowly as changes occur in the parent material. Thus, some profiles have faint horizons, some have distinct horizons, and some have prominent ones. Under favorable conditions, horizons change from faint to distinct with the passage of time and increase in number. The number and distinctness of horizons enable soil scientists to determine the age of a soil, or the stage of development it has reached.

Parent material

All the parent materials of Lowndes County are of Marine or Coastal Plain origin except the more recent alluvial sediments in valleys and on terraces along streams.

The Tombigbee River roughly separates the two main Land Resource Areas in Lowndes County. The Alabama and Mississippi Blackland Prairies are on the west side of the Tombigbee, and the Upper Coastal Plain is on the east side. The main geologic formations influencing the parent materials in these areas are the Demopolis and Mooreville Formations in the Blackland Prairies and the Eutaw-McShan and Tuscaloosa Formations in the Upper Coastal Plain. Materials from these formations have influenced the texture, mineralogy, and inherent fertility of the soils. The different sediments are shown on the geologic map (see fig. 1).

The soils in the western part of the county formed in marl or chalk and in the clays over the marl. These materials have been reworked and deposited by stream action in the flood plains of the Blackland Prairies. Most of the soils have inherited a high content of montmorillonitic clay and calcium carbonate, and a fairly high level of plant nutrients. Brooksville and Okolona soils are examples. Such properties influence the productivity, the engineering properties, and the use and management of the soils. The soils of the Blackland Prairies are greatly different from the other soils of the county in color, texture, reaction, and natural fertility.

The hilly soils in the northern part of Columbus developed in loamy and clayey Coastal Plain sediments over the Tombigbee Sand member of the Eutaw Formation. These parent materials have given rise to soils that range from loams to clays that are highly leached and low in inherent fertility. Smithdale and Sweatman soils are examples.

Other than the hilly sections north of Columbus and generally along the eastern side of the county, the area east of the Tombigbee River is characterized by a series of broad terracelike landscapes. Apparently, in its westward migration, the river has produced a series of terrace deposits as well as the present day alluvium.

Beginning at an elevation of about 170 feet northwest of Columbus and going northeast to an elevation of about 400 feet near Caledonia, as many as five different terrace levels can be identified. In most places there are definite scarps or slopes that separate the landscapes. They vary from about 1.5 miles to 4 miles in width. These terracelike landscapes are fewer in number and less distinctive in the southeastern part of the county.

Generally, the soils at elevations of 220 feet and lower formed in materials having higher sand content than did most of the soils at higher elevations. These soils have mainly a fine-loamy or coarse-loamy, siliceous control section. Some have a solum less than 60 inches thick. Cahaba and Prentiss soils are examples. Soils in the broad, depressional areas in these landscapes have relatively high levels of exchangeable sodium, and these levels usually increase with depth. Examples of these soils are Rosella soils and the low terrace phase of Guyton soils.

Above an elevation of 260 feet, the control section of many of the soils on the flat interfluves is fine-silty and siliceous, and content of sand coarser than very fine is about 10 to 15 percent. Paden soils are an example. Most gently sloping and steeper soils are fine-loamy and siliceous in the control section, but some border fine-silty, particularly the gently sloping soils. Savannah soils have been mapped in most of these areas. The steeper soils definitely have higher sand content in the control section. This is probably due in part to the fact that these upper surfaces are more highly dissected, and these soils have developed farther down in the old alluvium, which contains more sand and some gravel. Soils such as Pikeville, Ruston, and Smithdale occur in these areas.

Similar soils occur along the scarps and slopes between each terrace level. In many areas the upper part of the scarp is reflective of the soils on the upper level. Lower parts of the scarp, however, contain horizontal gravel beds truncated by the scarp. Some of the most productive farmland in the county is on these terracelike landscapes on all levels.

The hilly soils near the eastern and northern parts of the county are influenced by the Eutaw-McShan Formations (undivided) and in a few areas by the Tuscaloosa Formation. These areas give rise to soils that are fine-loamy, siliceous, and acid. Some soils have gravel content of more than 35 percent in the solum. Such soils as Saffell and Smithdale are in steep areas, and Savannah soils are on the ridges. Most of these steep soils are wooded, and the trees are harvested for timber.

The Tombigbee River and its major tributaries have extensive flood plains. These flood plains and low terraces reflect the nature of their alluvial parent materials. The Jena, Mantachie, and Latonia soils adjacent to Luxapalila Creek and on the east side of the Tombigbee River are acid and siliceous, similar to the upland soils of the drainage basin. The moderately alkaline Catalpa and Leeper soils along Catalpa, Gilmer, and Mogowah Creeks in the western part of the county are associated with the alkaline, clayey alluvium of the Blackland Prairies. Most of these soils have good potential for cultivated crops, but they are limited by the flood hazard.

The parent materials have had a dominating influence on the soils of Lowndes County. This can be readily observed in the Blackland Prairies in the western part of the county, across the broad flood plains of the Tombigbee River, and in the loamy hills in the east.

Climate

Rainfall and temperature are active factors in soil development. They influence the rates of weathering of parent materials and the decomposition of minerals. They also influence leaching, migration of fine particles, and illuviation. Therefore, climate has had a direct influence in the development of the soils of Lowndes County. It also has had indirect effects, since climate governs to a great extent the kinds of plants and animals that thrive on and in the soil.

The climatic effects are uniform over Lowndes County because the climate is the same over the entire area. The average rainfall is about 54 inches per year, and the average temperature is about 62 degrees F. Organic matter decomposes at a rapid rate, and the high rainfall causes much leaching. This process tends to make the soils acid. Many of the soils of the Black Belt, for example Sumter and Okolona soils, are not acid because of parent material, but the trend is in that direction.

Relief and drainage

Topography affects the drainage and rate of runoff. Thus, relief influences the moisture content in soils and erosion on the surface. The rate of runoff is greater on steep slopes than on gentle or level slopes. This means that the amount of water that moves through the soil during development depends partly on the relief. Excess water is present on and in soils that develop on low and flat topography. This extra water causes gray and mottled colors in the subsoil and in places an accumulation of organic matter in the surface layer. The influence of wetness is well expressed in many of the soils, such as Rosella, Sessum, and Guyton.

Fragipan formation also is associated with relief and drainage. Fragipans are compact and brittle and are most strongly expressed in level to gently sloping, somewhat poorly drained to moderately well drained soils. Savannah and Prentiss soils have a fragipan. The fragipan governs the depth that roots, air, and water can penetrate in the soils and the permeability and degree of wetness of the soils. In comparison with the other factors of soil development, relief and drainage are more local in scope, and their influence on the soils can be observed on small farms. Slope is important in that it limits the uses to which land is put as well as the productivity of the crops grown.

Living organisms

Plants and animals, especially the small ones (earthworms and insects), living in and on the soil have a direct influence on the nature of soils. Under natural conditions, plants govern the amount and distribution of organic matter in a soil profile.

Under forest conditions, organic matter is added to the soil as leaves and twigs decompose on the surface. Therefore, the accumulation of organic matter under trees is usually confined to the A horizon. The soils of the Upper Coastal Plain formed under forest cover and have this characteristic. In Prentiss, Savannah, Sweatman, and Vaiden soils, for example, most of the organic matter is in the A horizon. Under native grasses, the fibrous roots decay and add organic matter within the profile as deep as the roots grown. This process causes soils that develop under native grasses to have a thick, dark colored A horizon that extends as deep as 2 feet in the profile.

Some of the upland soils of the Blackland Prairies, for example Okolona and Brooksville soils, formed under grasses. These soils have a dark, thick A horizon and are locally called "black prairie" soils. All of the other soils in Lowndes County formed under trees. Hardwoods (post oak, hackberry, red oak, and hickory), under which Kipling and Vaiden soils formed, covered the forest sites of the Blackland Prairies. Loblolly and shortleaf pine, oak, and hickory provided the cover for the loamy hill section of the eastern part of the county.

Time

Many thousands of years are required for most soils to form. The weathering of rocks and other materials precedes the development of soil horizons. The Selma Chalk, which is under the Blackland Prairies, was deposited by the Gulf of Mexico about 70 million years ago. The other geologic formations in Lowndes County are older than the Selma Chalk.

This example shows that all of the soils of Lowndes County have been forming and changing for long periods. The alluvial soils along the streams are not so old because material has been and is still being deposited on them. Catalpa, Leeper, Mantachie, and Jena soils occur on flood plains and are important for the production of row and forage crops.

Processes of soil formation

Because of the wide range in parent material, relief, age, and biological activity, the soil forming processes of Lowndes County are complex. The soils of the county have changed greatly since the geologic ages, thousands of years ago, when the parent materials were laid down. The soil forming processes have produced the soils as we now know them and are still very active. They have been working much longer on soils of the uplands than on soils of the flood plains. Consequently, the soils of the uplands are older and have stronger profile development than soils on bottom lands.

The differences in the horizons of the soils in the county are caused by one or more processes. The main processes are: the accumulation of organic matter, the leaching of carbonates and salts, the formation and translocation of silicate clay minerals, and the reduction and transfer of iron.

Organic matter has accumulated in the top layer of the soils in the county to form an A horizon. A large amount of this organic matter is well decomposed material, or humus, but a considerable amount consists of living plants and other organisms.

Carbonates and salts have been leached from most soils in the county. Most soils on the east side of the county are acid, and their colloidal complexes are predominantly saturated with hydrogen ions.

The formation and translocation of silicate clay minerals (eluviation) have affected most of the soils in the county except the alluvial soils. Because alluvial soils are young, the processes that cause the formation and translocation of silicate clay minerals have not been active long enough to cause significant differences among the layers. The A horizon in a soil in the uplands is eluviated and contains a small amount of clay. The illuviated B horizon contains an accumulation of clay. The results of eluviation, or downward movement of clay, can be identified as clay films on faces of peds and on the walls of root channels and wormholes or other holes.

The reduction and transfer of iron have occurred in the poorly drained and somewhat poorly drained soils and to some extent in the lower part of the moderately well drained soils. This process is called gleying. It is more likely to occur in nearly level soils or in depressional soils than in sloping soils. In the nearly level or depressional soils, the restricted drainage results in reduced leaching, pronounced hydration, anaerobic biological activity, accumulation of organic acids, reduction of iron, and development of gray colors. Well oxidized soils are generally red, yellow, and brown. When the soil is not sufficiently aerated and oxidized, gleying occurs and mottles and concretions of iron and manganese form.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Medium	6 to 9
High	More than 9

Base saturation. The degree to which material having base exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Calcareous soil. A soil containing enough calcium carbonate (commonly with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid. A soil having measurable amounts of calcium carbonate or magnesium carbonate.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water control measures is difficult.

Complex, soil. A map unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage re-

sults from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Favorable. Favorable soil features for the specified use.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured (heavy textured) soil. Sandy clay, silty clay, and clay.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Forage. Plant material used as feed by domestic animals. Forage can be grazed or cut for hay.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the

overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered, but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand and loamy sand.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. Inadequate strength for supporting loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is greater than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Piping. Moving water of subsurface tunnels or pipelike cavities in the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Poorly graded. Refers to soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity (soil). The capability of a soil for producing a specified plant or sequence of plants under a specified system of management. Productivity is measured in terms of output, or harvest, in relation to input.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils

are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use or management.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or " very fine."

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

ILLUSTRATIONS

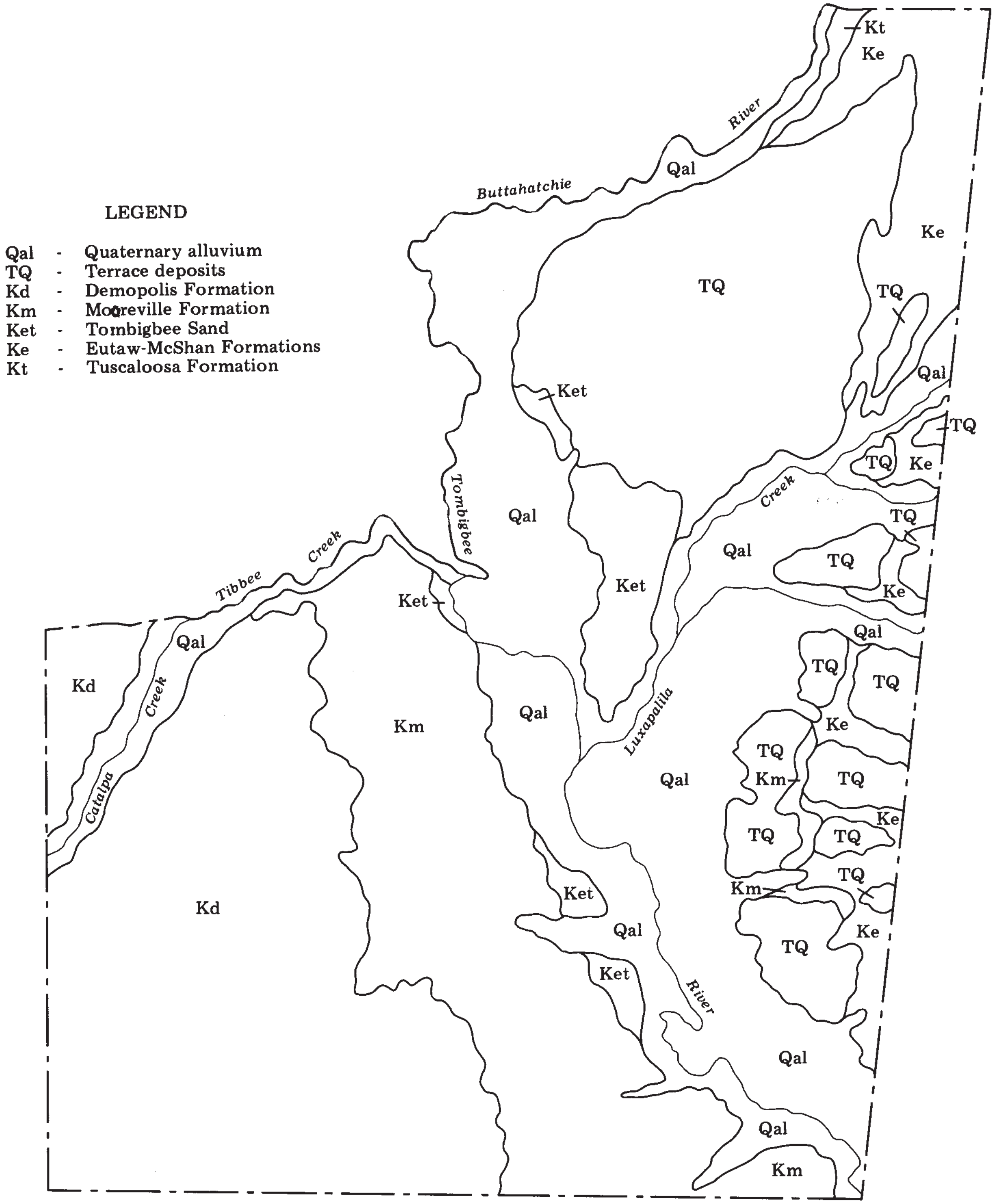

Figure 1.—Geologic map of Lowndes County.

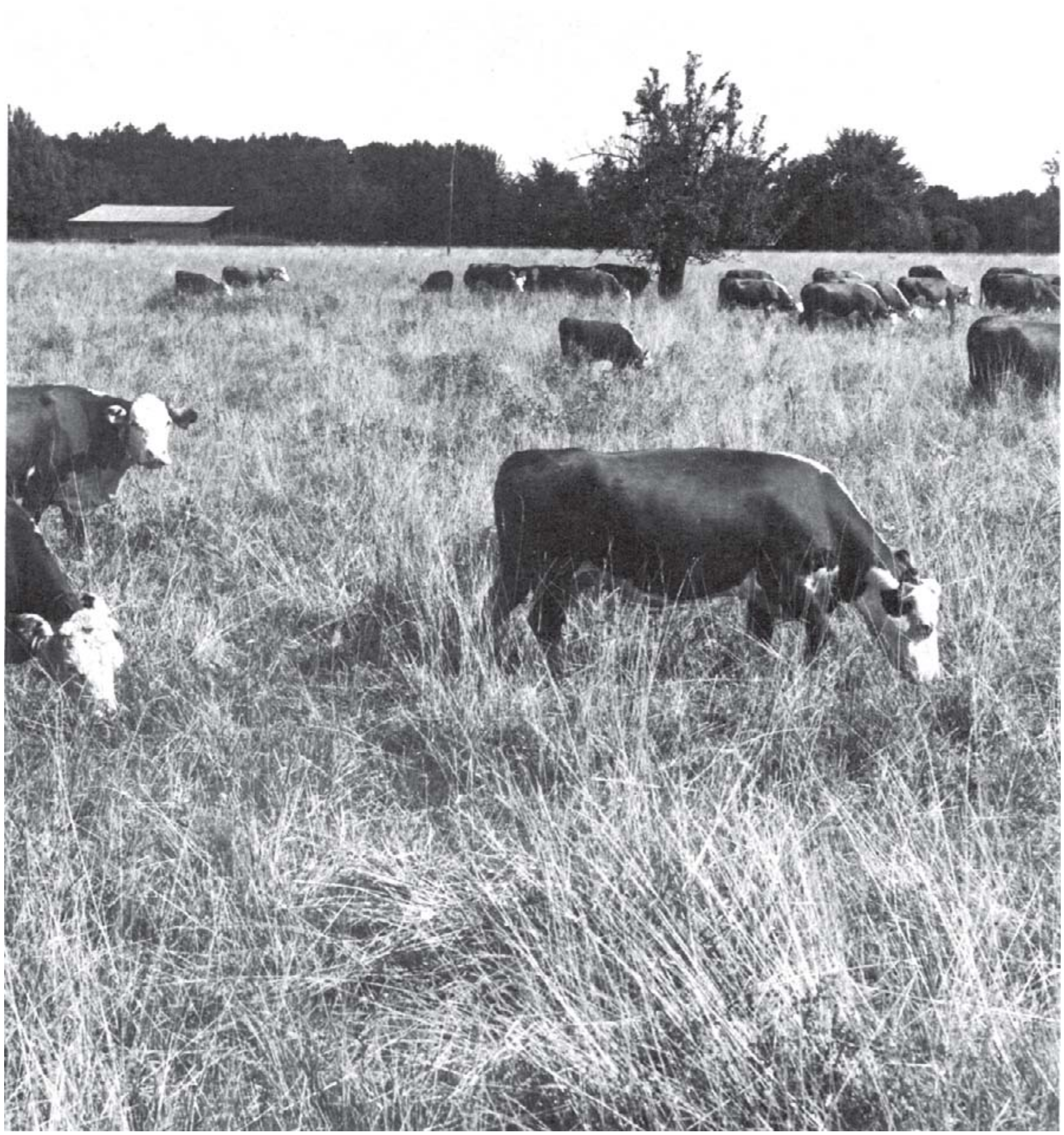

Figure 2.—Cattle grazing tall fescue on Brooksville silty clay, 1 to 3 percent slopes. The trees in the background are on Vaiden silty clay, 0 to 2 percent slopes.

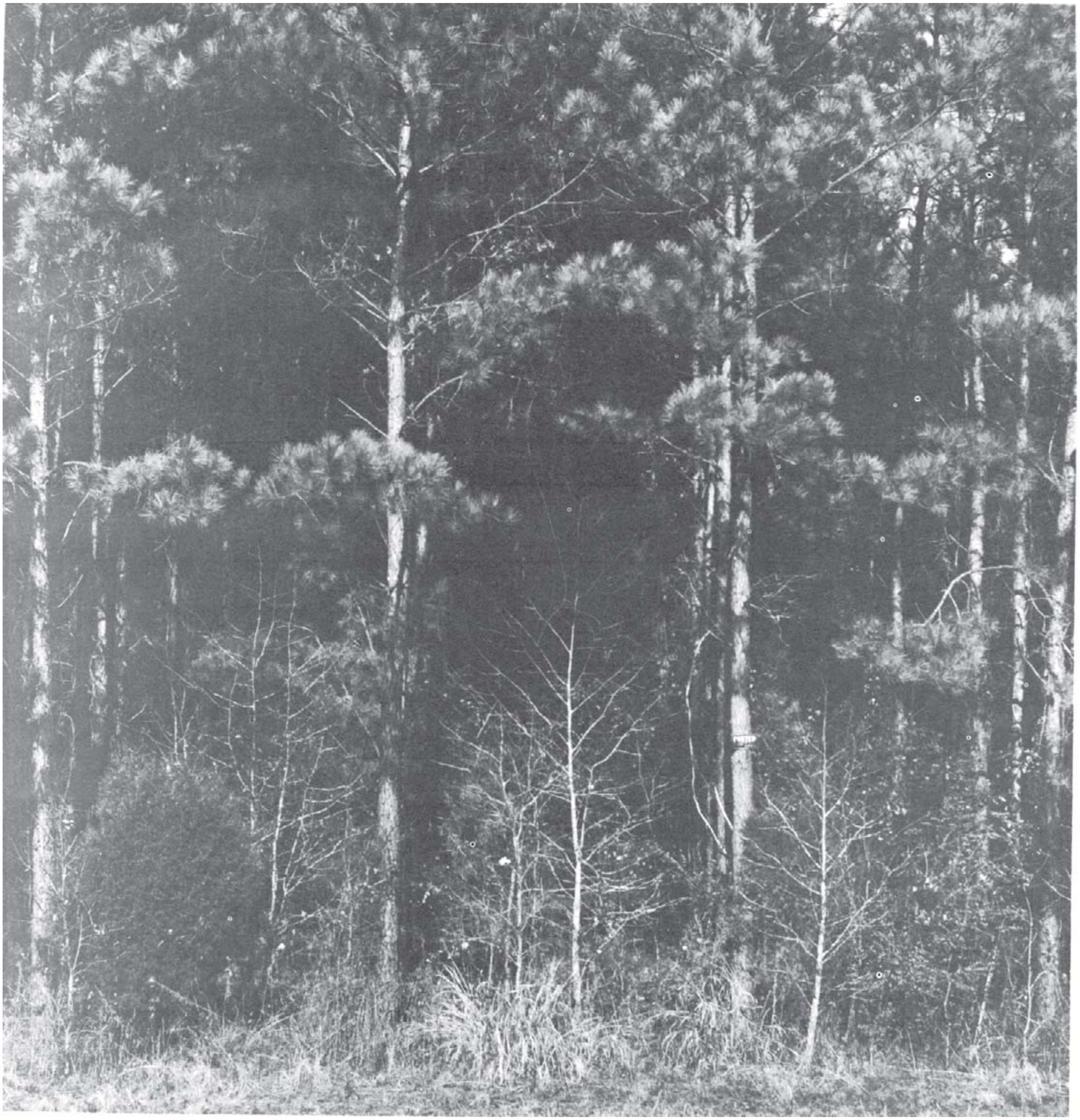

Figure 3.—Loblolly pine plantation on Latonia loamy sand, occasionally flooded. This soil is in woodland suitability group 2o1.

Figure 4.—The water standing on the surface of Leeper silty clay reflects the need for drainage or land leveling.

Figure 5.—Palmetto in the foreground and mixed pines in the background in an area of Rosella silt loam. This vegetation is typical on this soil, which has high sodium content in the subsoil.

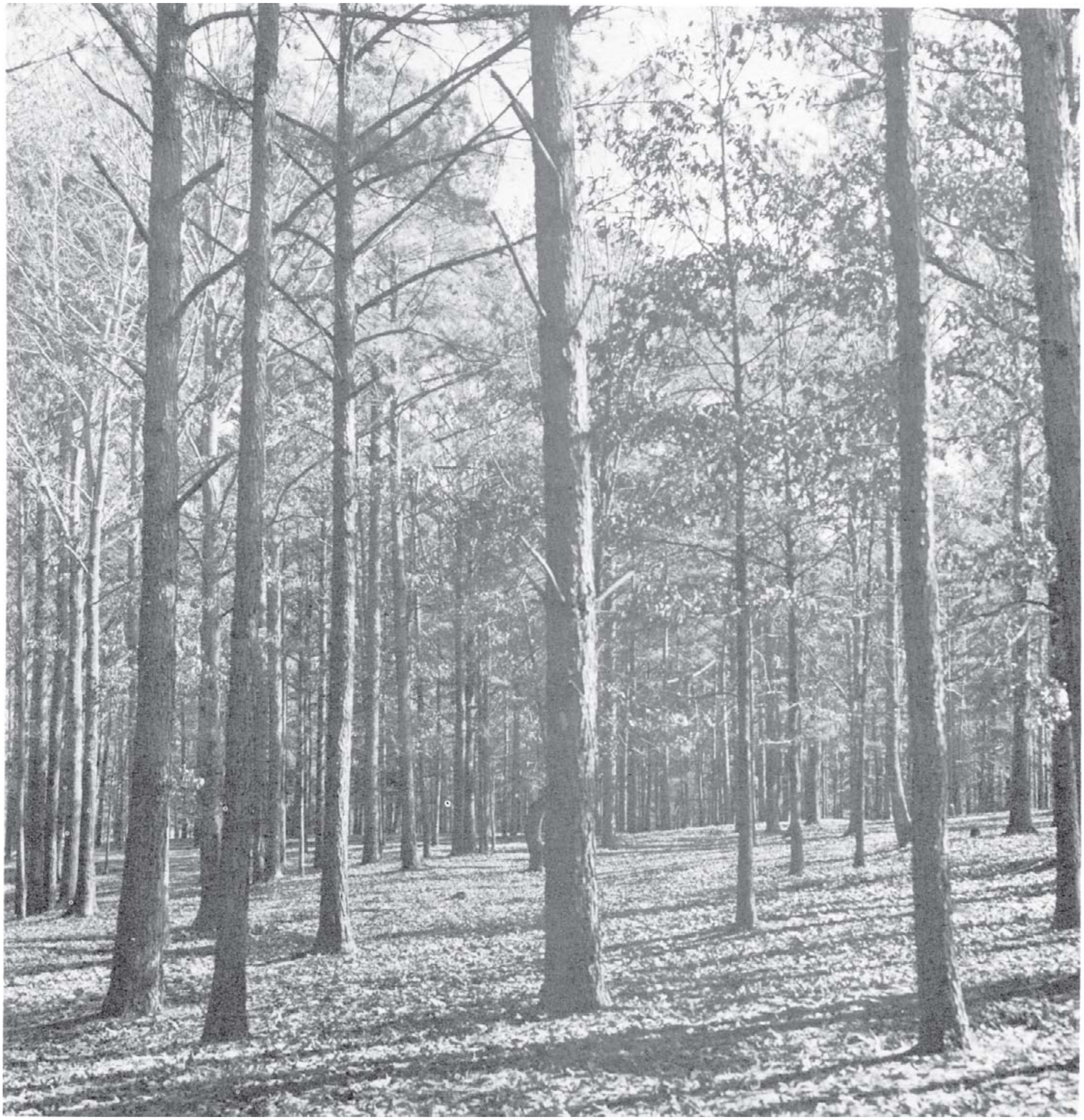

Figure 6.—Well stocked stand of loblolly pine sawtimber on Savannah silt loam, 5 to 8 percent slopes, eroded. Loblolly pine has a site index of 81 on this soil.

Figure 7.—Gully and sheet erosion on Sumter-Demopolis-Chalk outcrop complex, 5 to 20 percent slopes, severely eroded. The soil has been eroded away to expose the underlying Selma Chalk.

Figure 8.—Old-growth shortleaf pine—130 feet high and 38.3 inches in diameter at breast height—on Smithdale-Saffell complex, 15 to 35 percent slopes.

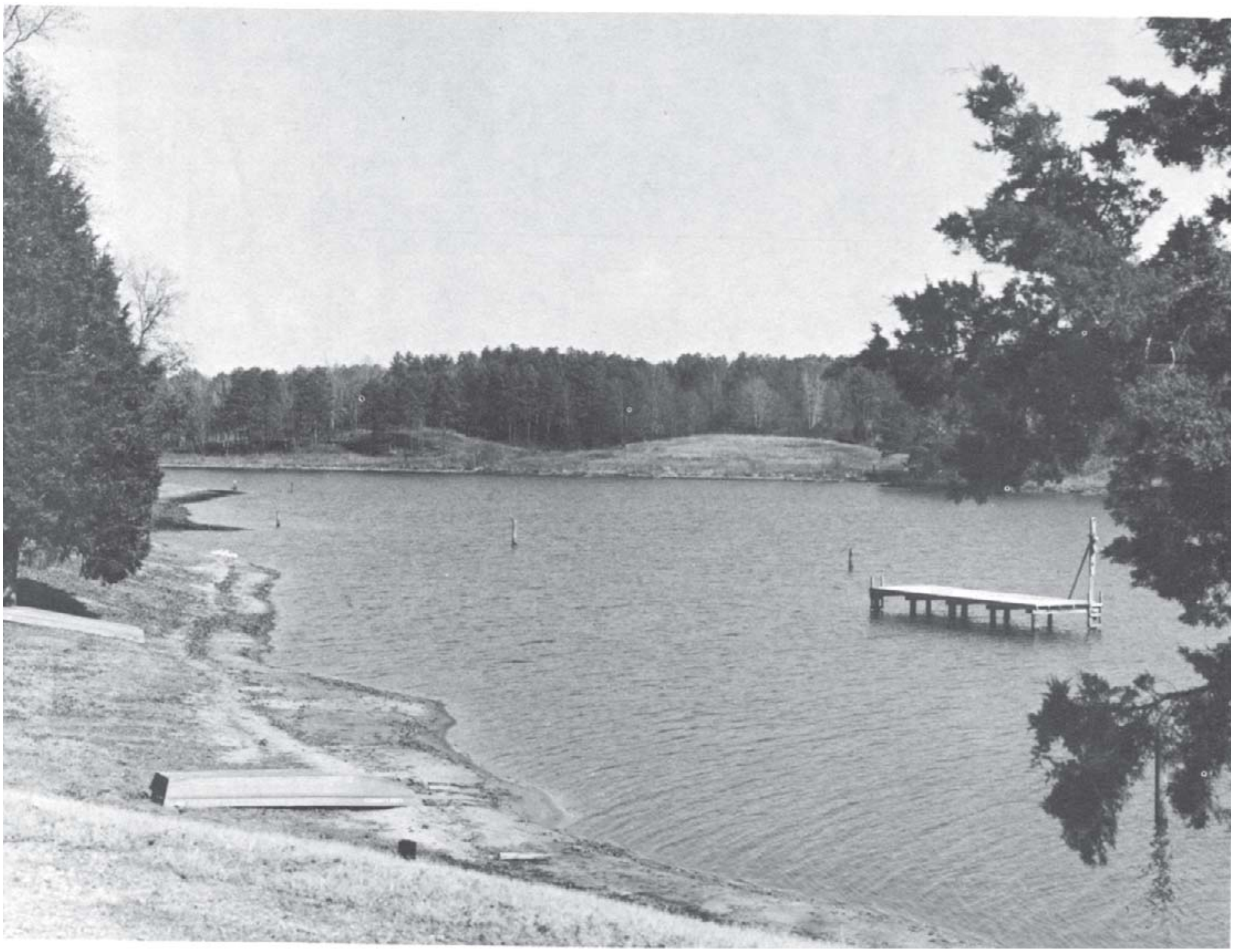

Figure 9.—Lake Lowndes, a recreation area on the Smithdale-Saffell complex, 15 to 35 percent slopes.

TABLES

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Data were recorded in the period 1951-75 at Columbus, Mississippi]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	54.5	32.4	43.5	77	10	56	5.57	3.16	7.53	9	1.1
February---	58.9	35.1	47.0	79	14	95	5.23	3.00	7.05	8	.6
March------	66.0	41.6	53.9	85	23	203	6.07	3.78	8.13	8	.3
April------	76.2	50.6	63.4	89	32	402	5.77	3.84	7.51	7	.0
May--------	83.5	58.4	70.9	94	40	648	3.91	2.42	5.24	6	.0
June-------	89.8	65.7	77.8	100	50	834	3.19	1.78	4.33	6	.0
July-------	92.5	68.7	80.6	101	58	949	5.64	3.24	7.60	8	.0
August-----	92.3	67.7	80.0	100	55	930	3.71	1.55	5.45	6	.0
September--	87.2	61.8	74.6	98	42	738	2.89	1.11	4.35	5	.0
October----	77.9	49.0	63.5	93	29	419	2.95	1.21	4.35	4	.0
November---	66.2	39.3	52.7	85	19	125	3.87	1.89	5.48	6	.0
December---	57.4	34.2	45.8	79	13	77	5.88	3.03	8.20	7	.4
Yearly---	75.2	50.4	62.8	103	8	5,476	54.68	46.07	62.93	80	2.4

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Data were recorded in the period 1951-75 at Columbus, Mississippi]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 14	March 29	April 13
2 years in 10 later than--	March 5	March 23	April 7
5 years in 10 later than--	February 16	March 11	March 28
First freezing temperature in fall:			
1 year in 10 earlier than--	November 3	October 30	October 17
2 years in 10 earlier than--	November 10	November 3	October 22
5 years in 10 earlier than--	November 23	November 10	October 30

TABLE 3.--GROWING SEASON LENGTH

[Data were recorded in the period 1951-75 at Columbus, Mississippi]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	244	224	194
8 years in 10	256	231	201
5 years in 10	279	243	216
2 years in 10	302	256	230
1 year in 10	314	263	238

TABLE 4.--POTENTIALS AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP

Map unit	Extent of area	Cultivated farm crops	Woodland	Urban uses	Inten recrea are
	Pct				
1. Leeper-Catalpa	6	Good	Good	Poor: floods.	Poor: floods.
2. Jena-Mantachie	7	Poor: floods.	Good	Poor: floods.	Poor: floods.
3. Cahaba-Prentiss-Guyton	12	Good	Good	Poor: floods.	Poor: floods.
4. Prentiss-Rosella-Steens	17	Fair: wetness.	Good	Poor: wetness.	Poor: wetness
5. Savannah-Caledonia-Guyton	13	Good	Fair: site index.	Fair: wetness.	Good
6. Smithdale-Savannah	6	Poor: slope.	Fair: site index.	Poor: slope.	Poor: slope.
7. Smithdale-Sweatman	2	Poor: slope.	Fair: site index.	Poor: slope.	Poor: slope.
8. Vaiden-Okolona-Brooksville	22	Good	Poor: site index.	Poor: wetness, shrink-swell.	Poor: wetness shrink-
9. Okolona-Brooksville-Sumter	5	Good	Poor: site index.	Poor: wetness, shrink-swell.	Poor: wetness shrink-
10. Sumter-Kipling	8	Poor: slope, erosion.	Poor: site index.	Poor: shrink-swell, erosion.	Poor: shrink- erosion
11. Kipling-Savannah	2	Fair: slope.	Fair: site index.	Poor: shrink swell, wetness.	Poor: shrink- wetness

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
An	Annemaine loam	931	0.3
BrA	Brooksville silty clay, 0 to 1 percent slopes	3,400	1.0
BrB	Brooksville silty clay, 1 to 3 percent slopes	5,050	1.6
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes	5,728	1.8
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes	1,924	0.6
CbA	Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded	3,929	1.2
CbB	Cahaba fine sandy loam, 2 to 5 percent slopes, occasionally flooded	798	0.2
CL	Cahaba-Latonia association, occasionally flooded	11,263	3.5
CoA	Caledonia silt loam, 0 to 2 percent slopes	2,969	0.9
CoB	Caledonia silt loam, 2 to 5 percent slopes	2,687	0.8
CoC2	Caledonia silt loam, 5 to 8 percent slopes, eroded	1,055	0.3
Cp	Catalpa silty clay	8,455	2.6
CT	Catalpa-Leeper association	6,378	2.0
Cu	Columbus silt loam	2,525	0.8
DeC2	Demopolis-Binnsville complex, 2 to 8 percent slopes, eroded	4,154	1.3
Gr	Griffith silty clay	2,394	0.7
Gu	Guyton silt loam	3,081	0.9
Gy	Guyton silt loam, low terrace	11,634	3.6
Je	Jena loam	3,408	1.0
JM	Jena-Mantachie association	12,415	3.8
Kn	Kinston loam	2,337	0.7
KpA	Kipling silty clay loam, 0 to 2 percent slopes	2,507	0.8
KpB2	Kipling silty clay loam, 2 to 5 percent slopes, eroded	3,747	1.2
KpC2	Kipling silty clay loam, 5 to 8 percent slopes, eroded	1,726	0.5
La	Latonia loamy sand	2,397	0.7
Lb	Latonia loamy sand, occasionally flooded	3,023	0.9
Ld	Latonia-Urban land complex	712	0.2
Le	Leeper silty clay	23,682	7.3
Ma	Mantachie loam	8,274	2.5
NJ	Nugent-Jena association	1,887	0.6
OkA	Okolona silty clay, 0 to 1 percent slopes	4,407	1.4
OkB	Okolona silty clay, 1 to 3 percent slopes	13,581	4.2
Pa	Paden silt loam	5,606	1.7
Ph	Pheba silt loam	820	0.3
PkC2	Pikeville sandy loam, 5 to 8 percent slopes, eroded	1,046	0.3
PsD2	Pikeville-Smithdale complex, 8 to 12 percent slopes, eroded	3,186	1.0
Pt	Pits	1,559	0.5
PuA	Prentiss loam, 0 to 2 percent slopes	21,519	6.6
PuB	Prentiss loam, 2 to 5 percent slopes	3,369	1.0
Pw	Prentiss-Urban land complex	1,852	0.6
Ro	Rosella silt loam	7,840	2.4
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded	2,552	0.8
SaA	Savannah silt loam, 0 to 2 percent slopes	8,390	2.6
SaB	Savannah silt loam, 2 to 5 percent slopes	13,908	4.3
SaC2	Savannah silt loam, 5 to 8 percent slopes, eroded	4,409	1.4
Se	Sessum silty clay loam	2,173	0.7
SmD	Smithdale fine sandy loam, 8 to 12 percent slopes	1,476	0.5
SmF	Smithdale fine sandy loam, 17 to 35 percent slopes	848	0.3
SnF	Smithdale-Saffell complex, 15 to 35 percent slopes	5,621	1.7
SR	Smithdale-Saffell association, hilly	2,298	0.7
SsF	Smithdale-Sweatman complex, 17 to 35 percent slopes	5,120	1.6
St	Steens fine sandy loam	8,206	2.5
SuB2	Sumter silty clay loam, 2 to 5 percent slopes, eroded	4,505	1.4
SuC2	Sumter silty clay loam, 5 to 12 percent slopes, eroded	11,458	3.5
SvD3	Sumter-Demopolis-Chalk outcrop complex, 5 to 20 percent slopes, severely eroded	1,730	0.5
Ts	Tuscumbia silty clay	683	0.2
Ur	Urban land	1,755	0.5
VaA	Vaiden silty clay, 0 to 2 percent slopes	16,670	5.1
VaB2	Vaiden silty clay, 2 to 5 percent slopes, eroded	18,673	5.8
VaC2	Vaiden silty clay, 5 to 8 percent slopes, eroded	2,998	0.9
	Water	2,392	0.7
	Total	325,120	100.0

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
An------------------------ Annemaine	800	100	40	---	---	10.0	---
BrA----------------------- Brooksville	700	60	35	---	11.0	---	9.0
BrB----------------------- Brooksville	650	60	30	---	10.5	---	9.0
CaA----------------------- Cahaba	800	90	35	---	10.0	8.5	---
CaB----------------------- Cahaba	750	85	30	---	9.5	8.0	---
CbA----------------------- Cahaba	800	90	35	---	10.0	8.5	---
CbB----------------------- Cahaba	750	85	30	---	9.5	8.0	---
CL**:							
Cahaba-------------------	800	90	35	---	10.0	8.5	---
Latonia------------------	750	60	25	---	9.5	8.5	---
CoA----------------------- Caledonia	750	100	40	---	10.5	10.5	---
CoB----------------------- Caledonia	700	90	35	---	10.0	10.0	---
CoC2---------------------- Caledonia	650	80	30	---	9.5	9.5	---
Cp------------------------ Catalpa	750	80	40	8.5	12.0	---	11.0
CT**:							
Catalpa------------------	---	---	30	8.0	9.0	---	9.0
Leeper-------------------	---	---	30	8.0	9.0	---	---
Cu------------------------ Columbus	---	---	30	---	10.0	8.5	---
DeC2---------------------- Demopolis	---	---	---	4.3	---	---	---
Gr------------------------ Griffith	750	85	40	8.0	---	---	11.0
Gu, Gy-------------------- Guyton	---	---	---	6.0	---	9.0	---
Je------------------------ Jena	700	85	40	7.0	12.0	---	---
JM**:							
Jena---------------------	---	---	---	6.5	---	---	---
Mantachie----------------	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
Kn-----Kinston	---	---	---	---	---	---	---
KpA-----Kipling	550	45	30	---	8.5	7.0	6.5
KpB2-----Kipling	550	40	25	---	8.5	7.0	6.5
KpC2-----Kipling	500	35	20	---	8.0	6.5	6.0
La-----Latonia	750	60	25	---	9.5	8.5	---
Lb-----Latonia	700	60	25	---	9.5	8.5	---
Ld-----Latonia	---	---	---	---	---	---	---
Le-----Leeper	750	80	40	8.0	12.0	---	11.0
Ma-----Mantachie	650	90	35	---	---	10.0	10.0
NJ**:							
Nugent-----	---	---	---	3.0	---	---	3.5
Jena-----	---	---	---	6.5	---	---	---
OkA-----Okolona	700	60	35	---	11.0	---	9.0
OkB-----Okolona	650	60	35	---	10.5	---	9.0
Pa-----Paden	700	80	35	---	8.5	9.0	8.0
Ph-----Pheba	575	75	30	---	8.5	8.0	7.0
PkC2-----Pikeville	---	---	---	---	7.0	7.0	6.0
PsD2-----Pikeville	---	---	---	---	7.0	7.0	5.5
Pt**. Pits							
PuA-----Prentiss	750	85	30	---	9.0	9.0	8.0
PuB-----Prentiss	750	80	30	---	9.0	9.0	8.0
Pw-----Prentiss	---	---	---	---	---	---	---
Ro-----Rosella	500	70	30	---	7.5	6.5	8.0
RuC2-----Ruston	600	65	25	5.5	12.0	9.5	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
SaA----------------------- Savannah	700	80	35	---	8.5	9.0	8.0
SaB----------------------- Savannah	650	75	35	---	8.5	9.0	8.0
SaC2---------------------- Savannah	600	70	30	---	8.0	9.0	7.5
Se------------------------ Sessum	---	---	25	---	9.0	---	6.0
SmD----------------------- Smithdale	400	50	25	5.0	9.0	---	---
SmF----------------------- Smithdale	---	---	---	---	---	---	---
SnF----------------------- Smithdale	---	---	---	---	---	---	---
SR**:							
Smithdale----------------	---	---	---	---	---	---	---
Saffell------------------	---	---	---	3.0	---	---	---
SsF----------------------- Smithdale	---	---	---	---	---	---	---
St------------------------ Steens	---	75	30	---	8.0	8.0	---
SuB2---------------------- Sumter	---	---	25	---	---	---	---
SuC2---------------------- Sumter	---	---	---	---	---	---	---
SvD3---------------------- Sumter	---	---	---	---	---	---	---
Ts------------------------ Tuscumbia	---	70	30	7.0	---	---	9.5
Ur**. Urban land							
VaA----------------------- Vaiden	500	45	45	---	4.5	7.0	---
VaB2---------------------- Vaiden	450	40	40	---	4.5	6.5	---
VaC2---------------------- Vaiden	---	---	---	---	4.5	6.5	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	8,697	---	---	---	---
II	163,126	41,317	115,005	6,804	---
III	79,222	35,987	43,235	---	---
IV	17,937	9,386	8,551	---	---
V	16,639	---	16,639	---	---
VI	15,612	15,612	---	---	---
VII	15,617	15,617	---	---	---
VIII	---	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available. Site index was calculated at age 30 for eastern cottonwood, at age 35 for American sycamore, and at age 50 for all other species]

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
An------------------ Annemaine	3w8	Slight	Moderate	Slight	Moderate	Loblolly pine-------	80	Yellow-poplar,
						Shortleaf pine------	70	loblolly pine.
						Yellow-poplar-------	90	
						Sweetgum------------	80	
BrA, BrB----------- Brooksville	4c2c	Slight	Moderate	Moderate	Slight	Eastern redcedar----	40	Eastern redcedar.
CaA, CaB, CbA, CbB- Cahaba	2o7	Slight	Slight	Slight	Moderate	Loblolly pine-------	91	Loblolly pine,
						Slash pine----------	91	slash pine,
						Yellow-poplar-------	---	yellow-poplar,
						Sweetgum------------	90	cherrybark oak.
						Southern red oak----	---	
						White oak-----------	---	
						Cherrybark oak------	---	
						Blackgum------------	---	
CL*:								
Cahaba-------------	2o7	Slight	Slight	Slight	Moderate	Loblolly pine-------	91	Loblolly pine,
						Slash pine----------	91	slash pine,
						Yellow-poplar-------	---	yellow-poplar,
						Sweetgum------------	90	cherrybark oak.
						Southern red oak----	---	
						White oak-----------	---	
						Cherrybark oak------	---	
Latonia------------	2o1	Slight	Slight	Slight	Slight	Loblolly pine-------	90	Loblolly pine,
						Slash pine----------	90	slash pine.
CoA, CoB, CoC2----- Caledonia	2o7	Slight	Slight	Slight	Slight	Cherrybark oak------	90	Cherrybark oak,
						Loblolly pine-------	90	loblolly pine,
						Sweetgum------------	85	sweetgum,
								white oak.
Cp----------------- Catalpa	1w5	Slight	Moderate	Moderate	Moderate	Eastern cottonwood--	110	Eastern cottonwood,
						Green ash-----------	90	sweetgum,
						Sweetgum------------	100	American sycamore.
						American sycamore---	100	
CT*:								
Catalpa------------	1w5	Slight	Moderate	Moderate	Moderate	Eastern cottonwood--	110	Eastern cottonwood,
						Green ash-----------	90	sweetgum,
						Sweetgum------------	100	American sycamore.
						American sycamore---	100	
Leeper**-----------	1w6	Slight	Severe	Severe	Moderate	Eastern cottonwood--	110	Eastern cottonwood,
						Sweetgum------------	95	sweetgum,
						Green ash-----------	90	green ash,
						American sycamore---	100	American sycamore.
Cu----------------- Columbus	2w8	Slight	Moderate	Slight	Slight	Loblolly pine-------	90	Loblolly pine,
						Sweetgum------------	85	sweetgum,
						Water oak-----------	90	yellow-poplar.
						Yellow-poplar-------	90	
DeC2*:								
Demopolis----------	4d3c	Severe	Moderate	Severe	Moderate	Eastern redcedar----	40	Eastern redcedar.
Binnsville---------	4d3c	Severe	Moderate	Severe	Moderate	Eastern redcedar----	40	Eastern redcedar.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Wood-land suita-bility group	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Plant competi-tion	Common trees	Site index	
Gr**------------------ Griffith	1w6	Slight	Severe	Severe	Moderate	Eastern cottonwood-- Green ash----------- Sweetgum------------ American sycamore---	110 95 95 100	Eastern cottonwood, green ash, sweetgum, American sycamore.
Gu, Gy--------------- Guyton	2w9	Slight	Severe	Moderate	Severe	Loblolly pine------- Slash pine---------- Sweetgum------------ Green ash----------- Southern red oak---- Water oak-----------	90 90 --- --- --- ---	Loblolly pine, sweetgum.
Je------------------- Jena	1o7	Slight	Slight	Slight	Moderate	Loblolly pine------- Sweetgum------------ Water oak----------- Southern red oak---- White oak----------- Slash pine----------	100 90 80 --- --- ---	Loblolly pine, slash pine, American sycamore, eastern cottonwood.
JM*:								
Jena-----------------	1w9	Slight	Severe	Moderate	Moderate	Loblolly pine------- Sweetgum------------ Water oak----------- Southern red oak---- White oak----------- Slash pine----------	100 90 80 --- --- ---	Loblolly pine, slash pine, American sycamore, eastern cottonwood.
Mantachie**----------	1w9	Slight	Severe	Severe	Severe	Green ash----------- Eastern cottonwood-- Cherrybark oak------ Loblolly pine------- Sweetgum------------ Yellow-poplar-------	80 90 100 98 95 95	Green ash, eastern cottonwood, cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
Kn------------------- Kinston	1w9	Slight	Severe	Severe	Severe	Loblolly pine------- Sweetgum------------ White oak----------- Cherrybark oak------	100 95 90 95	Loblolly pine, slash pine, American sycamore, yellow-poplar, eastern cottonwood, cherrybark oak, green ash, sweetgum.
KpA, KpB2, KpC2------ Kipling	2c8	Slight	Moderate	Moderate	Moderate	Cherrybark oak------ Loblolly pine------- Shumard oak--------- Sweetgum------------ Water oak----------- White oak-----------	90 90 85 90 80 80	Cherrybark oak, loblolly pine, Shumard oak, sweetgum.
La, Lb--------------- Latonia	2o1	Slight	Slight	Slight	Slight	Loblolly pine------- Slash pine----------	90 90	Loblolly pine, slash pine.
Ld*:								
Latonia--------------	2o1	Slight	Slight	Slight	Slight	Loblolly pine------- Slash pine----------	90 90	Loblolly pine, slash pine.
Urban land.								
Le**----------------- Leeper	1w6	Slight	Severe	Severe	Slight	Eastern cottonwood-- Sweetgum------------ Green ash----------- American sycamore---	110 95 90 100	Eastern cottonwood, sweetgum, green ash, American sycamore.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Wood-land suita-bility group	Management concerns: Erosion hazard	Management concerns: Equip-ment limita-tion	Management concerns: Seedling mortal-ity	Management concerns: Plant competi-tion	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
Ma**------------- Mantachie	1w9	Slight	Severe	Moderate	Severe	Green ash-----------	80	Green ash,
						Eastern cottonwood--	90	eastern cottonwood,
						Cherrybark oak------	100	cherrybark oak,
						Loblolly pine-------	98	loblolly pine,
						Sweetgum------------	95	sweetgum,
						Yellow-poplar-------	95	yellow-poplar.
NJ*:								
Nugent------------	2s8	Slight	Moderate	Moderate	Slight	Loblolly pine-------	90	Loblolly pine,
						Slash pine----------	90	slash pine,
						Sweetgum------------	95	sweetgum,
						Water oak-----------	85	water oak,
						Willow oak----------	85	yellow-poplar.
Jena--------------	1w9	Slight	Severe	Moderate	Moderate	Loblolly pine-------	100	Loblolly pine,
						Sweetgum------------	90	slash pine,
						Water oak-----------	80	American sycamore,
						Southern red oak----	---	eastern cottonwood.
						White oak-----------	---	
						Slash pine----------	---	
OkA, OkB----------- Okolona	4c2c	Slight	Moderate	Moderate	Slight	Eastern redcedar----	40	Eastern redcedar.
Pa----------------- Paden	3o7	Slight	Slight	Slight	Moderate	Loblolly pine-------	80	Loblolly pine,
						Shortleaf pine------	75	slash pine.
						Sweetgum------------	80	
Ph----------------- Pheba	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	Loblolly pine,
						Shortleaf pine------	80	slash pine.
						Sweetgum------------	90	
						Slash pine----------	90	
PkC2--------------- Pikeville	3o1	Slight	Slight	Slight	Moderate	Loblolly pine-------	80	Loblolly pine.
PsD2*:								
Pikeville---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine-------	80	Loblolly pine.
Smithdale---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine-------	80	Loblolly pine.
						Shortleaf pine------	69	
PuA, PuB----------- Prentiss	2o7	Slight	Slight	Slight	Slight	Loblolly pine-------	88	Loblolly pine,
						Shortleaf pine------	79	slash pine.
						Sweetgum------------	90	
						Cherrybark oak------	90	
						White oak-----------	80	
Pw*:								
Prentiss----------	2o7	Slight	Slight	Slight	Slight	Loblolly pine-------	88	Loblolly pine,
						Shortleaf pine------	79	slash pine.
						Sweetgum------------	90	
						Cherrybark oak------	90	
						White oak-----------	80	
Urban land.								
Ro**--------------- Rosella	3w9	Slight	Severe	Severe	Moderate	Loblolly pine-------	80	Loblolly pine,
						Sweetgum------------	75	Shumard oak,
						Water oak-----------	80	sweetgum,
						Willow oak----------	80	yellow-poplar.
RuC2--------------- Ruston	3o1	Slight	Slight	Slight	Moderate	Loblolly pine-------	84	Loblolly pine.
						Shortleaf pine------	75	
SaA, SaB, SaC2----- Savannah	3o7	Slight	Slight	Slight	Moderate	Loblolly pine-------	81	Loblolly pine,
						Shortleaf pine------	76	slash pine.
						Southern red oak----	75	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Wood-land suita-bility group	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Plant competi-tion	Common trees	Site index	
Se----------------- Sessum	3c8	Slight	Moderate	Moderate	Moderate	Southern red oak---- White oak----------- Loblolly pine------- Sweetgum------------ Eastern redcedar----	--- --- 83 80 45	Eastern redcedar, loblolly pine.
SmD, SmF----------- Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine------- Shortleaf pine------	80 69	Loblolly pine.
SnF*, SR*:								
Smithdale---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine------- Shortleaf pine------	80 69	Loblolly pine.
Saffell-----------	4f2	Slight	Slight	Moderate	Slight	Loblolly pine------- Shortleaf pine------ Eastern redcedar----	70 60 ---	Loblolly pine, shortleaf pine, eastern redcedar.
SsF*:								
Smithdale---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine------- Shortleaf pine------	80 69	Loblolly pine.
Sweatman----------	3c2	Slight	Moderate	Slight	Slight	Loblolly pine------- Shortleaf pine------	83 73	Loblolly pine, shortleaf pine.
St----------------- Steens	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine------- Sweetgum------------ Water oak-----------	90 85 90	Loblolly pine, sweetgum, Shumard oak, cherrybark oak.
SuB2, SuC2--------- Sumter	4c2c	Moderate	Moderate	Moderate	Slight	Eastern redcedar----	40	Eastern redcedar.
SvD3*:								
Sumter------------	4c3c	Moderate	Moderate	Moderate	Slight	Eastern redcedar----	40	Eastern redcedar.
Demopolis---------	4d3c	Moderate	Moderate	Severe	Moderate	Eastern redcedar----	40	Eastern redcedar.
Chalk outcrop.								
Ts**--------------- Tuscumbia	2w6	Slight	Moderate	Severe	Severe	Eastern cottonwood-- Green ash----------- Sweetgum------------	100 95 85	Eastern cottonwood, green ash, sweetgum.
VaA, VaB2, VaC2---- Vaiden	3c8	Slight	Moderate	Moderate	Severe	Loblolly pine------- Shortleaf pine------ Eastern redcedar---- Southern redcedar---	76 68 45 70	Loblolly pine, eastern redcedar.

* See description of the map unit for composition and behavior characteristics of the map unit.
** Adequate water control is needed for survival of planted seedlings.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
An: Annemaine	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Moderate: floods, wetness.
BrA, BrB: Brooksville	Severe: wetness, too clayey.	Severe: shrink-swell, low strength.	Severe: wetness, shrink-swell, low strength.	Severe: shrink-swell, corrosive, low strength.	Severe: shrink-swell, low strength.	Severe: too clayey.
CaA, CaB: Cahaba	Slight	Slight	Slight	Slight	Slight	Slight.
CbA, CbB: Cahaba	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
CL*:						
Cahaba	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
Latonia	Severe: cutbanks cave, floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods, too sandy.
CoA, CoB: Caledonia	Moderate: too clayey.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell.	Slight.
CoC2: Caledonia	Moderate: too clayey.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, slope, low strength.	Moderate: shrink-swell.	Slight.
Cp: Catalpa	Severe: floods, too clayey, wetness.	Severe: floods, shrink-swell, wetness.	Severe: floods, shrink-swell, wetness.	Severe: floods, shrink-swell, wetness.	Severe: low strength, shrink-swell, floods.	Severe: too clayey, floods.
CT*:						
Catalpa	Severe: floods, too clayey, wetness.	Severe: floods, shrink-swell, wetness.	Severe: floods, shrink-swell, wetness.	Severe: floods, shrink-swell, wetness.	Severe: low strength, shrink-swell, floods.	Severe: too clayey, floods.
Leeper	Severe: wetness, floods, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: shrink-swell, wetness, floods.	Severe: shrink-swell, wetness, floods.	Severe: too clayey, floods.
Cu: Columbus	Severe: floods.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: floods.
DeC2*:						
Demopolis	Moderate: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Severe: thin layer.
Binnsville	Severe: depth to rock, too clayey.	Severe: depth to rock, low strength.	Severe: depth to rock, low strength.	Severe: depth to rock, low strength.	Severe: depth to rock, low strength.	Severe: thin layer.
Gr: Griffith	Severe: floods, too clayey, wetness.	Severe: floods, shrink-swell, low strength.	Severe: floods, wetness, shrink-swell.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: too clayey, floods.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Gu, Gy----------- Guyton	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Je--------------- Jena	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
JM*:						
Jena-------------	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Mantachie--------	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Kn--------------- Kinston	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
KpA, KpB2, KpC2--- Kipling	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength, corrosive.	Severe: shrink-swell, low strength.	Moderate: wetness.
La--------------- Latonia	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: too sandy.
Lb--------------- Latonia	Severe: cutbanks cave, floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods, too sandy.
Ld*:						
Latonia----------	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: too sandy.
Urban land.						
Le--------------- Leeper	Severe: wetness, floods, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: shrink-swell, wetness, floods.	Severe: shrink-swell, wetness, floods.	Severe: too clayey, floods, wetness.
Ma--------------- Mantachie	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
NJ*:						
Nugent-----------	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Jena-------------	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
OkA, OkB---------- Okolona	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, corrosive, low strength.	Severe: shrink-swell, low strength.	Severe: too clayey.
Pa--------------- Paden	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength.	Moderate: wetness.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ph: Pheba	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Moderate: low strength, wetness.	Moderate: wetness.
PkC2: Pikeville	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
PsD2*:						
Pikeville	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, low strength.	Moderate: slope.
Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Pt*. Pits						
PuA, PuB: Prentiss	Moderate: wetness.	Moderate: wetness, low strength.	Severe: wetness.	Moderate: wetness, low strength.	Moderate: low strength.	Slight.
Pw*:						
Prentiss	Moderate: wetness.	Moderate: wetness, low strength.	Severe: wetness.	Moderate: wetness, low strength.	Moderate: low strength.	Slight.
Urban land.						
Ro: Rosella	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.
RuC2: Ruston	Slight	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
SaA, SaB: Savannah	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, corrosive.	Moderate: low strength.	Moderate: wetness.
SaC2: Savannah	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope, corrosive.	Moderate: low strength.	Moderate: wetness.
Se: Sessum	Severe: too clayey, wetness.	Severe: wetness, shrink-swell, low strength.	Severe: wetness, shrink-swell, low strength.	Severe: wetness, shrink-swell, corrosive.	Severe: shrink-swell, wetness, low strength.	Severe: wetness, too clayey.
SmD: Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
SmF: Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SnF*, SR*:						
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Saffell	Severe: slope, small stones.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SsF*:						
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
St---------------- Steens	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness, low strength.	Moderate: wetness.
SuB2-------------- Sumter	Severe: depth to rock, too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Moderate: thin layer.
SuC2-------------- Sumter	Severe: depth to rock, too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: slope, shrink-swell, low strength.	Severe: shrink-swell, low strength.	Moderate: thin layer.
SvD3*:						
Sumter-----------	Severe: depth to rock, too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: slope, shrink-swell, low strength.	Severe: shrink-swell, low strength.	Moderate: slope, thin layer.
Demopolis--------	Moderate: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Severe: thin layer.
Chalk outcrop.						
Ts---------------- Tuscumbia	Severe: wetness, floods.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: wetness, floods, too clayey.
Ur*. Urban land						
VaA, VaB2, VaC2--- Vaiden	Severe: too clayey, wetness.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
An------------------ Annemaine	Severe: floods, percs slowly, wetness.	Severe: floods, wetness.	Severe: floods, too clayey, wetness.	Severe: floods, wetness.	Poor: too clayey.
BrA----------------- Brooksville	Severe: percs slowly, wetness.	Slight-----------	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey, wetness.
BrB----------------- Brooksville	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey, wetness.
CaA, CaB------------ Cahaba	Slight-----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
CbA, CbB------------ Cahaba	Severe: floods.	Severe: seepage, floods.	Severe: floods, seepage.	Severe: floods, seepage.	Good.
CL*:					
Cahaba-------------	Severe: floods.	Severe: seepage, floods.	Severe: floods, seepage.	Severe: floods, seepage.	Good.
Latonia------------	Severe: floods.	Severe: seepage, floods.	Severe: seepage, floods.	Severe: seepage, floods.	Fair: too sandy.
CoA----------------- Caledonia	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
CoB, CoC2----------- Caledonia	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
Cp------------------ Catalpa	Severe: percs slowly, floods, wetness.	Slight-----------	Severe: floods, too clayey, wetness.	Severe: floods, wetness.	Poor: too clayey.
CT*:					
Catalpa------------	Severe: percs slowly, floods, wetness.	Slight-----------	Severe: floods, too clayey, wetness.	Severe: floods, wetness.	Poor: too clayey.
Leeper-------------	Severe: percs slowly, wetness, floods.	Moderate: slope.	Severe: too clayey, floods, wetness.	Severe: floods, wetness.	Poor: too clayey, wetness.
Cu------------------ Columbus	Severe: floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Fair: too clayey.
DeC2*:					
Demopolis----------	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DeC2*: Cont.					
Binnsville	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: too clayey, depth to rock.
Gr: Griffith	Severe: floods, percs slowly, wetness.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey.
Gu, Gy: Guyton	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Je: Jena	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
JM*:					
Jena	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
Mantachie	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Kn: Kinston	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
KpA: Kipling	Severe: percs slowly.	Slight	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
KpB2, KpC2: Kipling	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
La: Latonia	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Lb: Latonia	Severe: floods.	Severe: seepage, floods.	Severe: seepage, floods.	Severe: seepage, floods.	Fair: too sandy.
Ld*:					
Latonia	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Urban land.					
Le: Leeper	Severe: percs slowly, wetness, floods.	Slight	Severe: too clayey, floods, wetness.	Severe: floods, wetness.	Poor: too clayey, wetness.
Ma: Mantachie	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
NJ*:					
Nugent	Severe: floods, wetness.	Severe: seepage, floods.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Fair: too sandy.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NJ*: Cont.					
Jena	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
OkA Okolona	Severe: percs slowly.	Slight	Severe: too clayey.	Slight	Poor: too clayey.
OkB Okolona	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.
Pa Paden	Severe: percs slowly, wetness.	Moderate: seepage.	Slight	Slight	Fair: thin layer.
Ph Pheba	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: thin layer.
PkC2 Pikeville	Slight	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer, small stones.
PsD2*:					
Pikeville	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, thin layer, small stones.
Smithdale	Moderate: slope.	Severe: seepage, slope.	Slight	Moderate: slope.	Fair: slope.
Pt*. Pits					
PuA, PuB Prentiss	Severe: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Good.
Pw*:					
Prentiss	Severe: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Good.
Urban land.					
Ro Rosella	Severe: percs slowly, wetness, floods.	Slight	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
RuC2 Ruston	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
SaA Savannah	Severe: percs slowly.	Slight	Slight	Slight	Good.
SaB, SaC2 Savannah	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Se Sessum	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SmD: Smithdale	Moderate: slope.	Severe: seepage, slope.	Slight	Moderate: slope.	Fair: slope.
SmF: Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
SnF*, SR*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Saffell	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope, small stones.
SsF*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Sweatman	Severe: slope, percs slowly.	Severe: slope.	Moderate: too clayey.	Severe: slope.	Poor: slope, thin layer.
St: Steens	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: wetness.
SuB2: Sumter	Severe: percs slowly, depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: too clayey.
SuC2: Sumter	Severe: percs slowly, depth to rock.	Severe: slope, percs slowly, depth to rock.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
SvD3*:					
Sumter	Severe: percs slowly, depth to rock.	Severe: slope, percs slowly, depth to rock.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
Demopolis	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer.
Chalk outcrop.					
Ts: Tuscumbia	Severe: percs slowly, floods.	Severe: wetness, floods.	Severe: wetness, too clayey, floods.	Severe: wetness, floods.	Poor: wetness, too clayey.
Ur*. Urban land					
VaA: Vaiden	Severe: percs slowly.	Slight	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey.
VaB2, VaC2: Vaiden	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
An: Annemaine	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
BrA, BrB: Brooksville	Poor: shrink-swell, wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
CaA, CaB, CbA, CbB: Cahaba	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
CL*:				
Cahaba	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
Latonia	Good	Fair: excess fines.	Unsuited: excess fines.	Fair: too sandy.
CoA, CoB, CoC2: Caledonia	Fair: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Cp: Catalpa	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, too clayey.
CT*:				
Catalpa	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, too clayey.
Leeper	Poor: shrink-swell, low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.
Cu: Columbus	Fair: low strength, wetness.	Poor: excess fines.	Unsuited: excess fines.	Fair: too clayey.
DeC2*:				
Demopolis	Poor: thin layer, area reclaim.	Poor: excess fines, thin layer.	Poor: excess fines, thin layer.	Poor: thin layer, small stones.
Binnsville	Poor: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Gr: Griffith	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Gu, Gy: Guyton	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Je: Jena	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
JM*:				
Jena	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
JM*: Cont.				
Mantachie	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Kn Kinston	Poor: wetness.	Poor: excess fines.	Poor: excess fines.	Poor: wetness.
KpA, KpB2, KpC2 Kipling	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
La, Lb Latonia	Good	Fair: excess fines.	Unsuited: excess fines.	Fair: too sandy.
Ld*:				
Latonia	Good	Fair: excess fines.	Unsuited: excess fines.	Fair: too sandy.
Urban land.				
Le Leeper	Poor: shrink-swell, low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.
Ma Mantachie	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
NJ*:				
Nugent	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Jena	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
OkA, OkB Okolona	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Pa Paden	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Ph Pheba	Fair: low strength, wetness.	Unsuited	Unsuited	Good.
PkC2 Pikeville	Fair: low strength.	Unsuited: excess fines, small stones.	Fair: excess fines.	Fair: small stones.
PsD2*:				
Pikeville	Fair: low strength.	Unsuited: excess fines, small stones.	Fair: excess fines.	Fair: slope, small stones.
Smithdale	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
Pt*. Pits				
PuA, PuB Prentiss	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Pw*:				
Prentiss	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Urban land.				
Ro Rosella	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
RuC2 Ruston	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
SaA, SaB, SaC2 Savannah	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Se Sessum	Poor: shrink-swell, wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.
SmD Smithdale	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
SmF Smithdale	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
SnF*, SR*:				
Smithdale	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Saffell	Poor: slope.	Poor: excess fines.	Fair: excess fines.	Poor: slope, small stones.
SsF*:				
Smithdale	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Sweatman	Fair: shrink-swell, slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
St Steens	Fair: wetness, low strength.	Poor: excess fines.	Unsuited: excess fines.	Fair: thin layer.
SuB2, SuC2 Sumter	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
SvD3*:				
Sumter	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Demopolis	Poor: thin layer, area reclaim.	Poor: excess fines, thin layer.	Poor: excess fines, thin layer.	Poor: thin layer, small stones.
Chalk outcrop.				
Ts Tuscumbia	Poor: shrink-swell, low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, too clayey.
Ur*. Urban land				

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
VaA, VaB2, VaC2------- Vaiden	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
An-----------------Annemaine	Moderate: seepage.	Moderate: hard to pack, piping.	Severe: no water.	Percs slowly, poor outlets, floods.	Complex slope, poor outlets, percs slowly.	Favorable.
BrA, BrB----------Brooksville	Slight----------	Moderate: shrink-swell, unstable fill.	Severe: no water.	Percs slowly, wetness, slope.	Percs slowly, wetness.	Favorable.
CaA, CaB, CbA, CbB--------------Cahaba	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Not needed-----	Too sandy------	Favorable.
CL*:						
Cahaba-----------	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Not needed-----	Too sandy------	Favorable.
Latonia----------	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Favorable------	Favorable.
CoA, CoB, CoC2----Caledonia	Moderate: seepage.	Slight----------	Severe: no water.	Not needed-----	Favorable------	Erodes easily.
Cp----------------Catalpa	Slight----------	Moderate: unstable fill.	Severe: deep to water.	Percs slowly, wetness, floods.	Percs slowly, wetness.	Percs slowly, wetness.
CT*:						
Catalpa----------	Slight----------	Moderate: unstable fill.	Severe: deep to water.	Percs slowly, wetness, floods.	Percs slowly, wetness.	Percs slowly, wetness.
Leeper-----------	Slight----------	Moderate: unstable fill, compressible.	Severe: deep to water.	Floods, wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Cu----------------Columbus	Moderate: seepage.	Moderate: wetness, thin layer.	Moderate: deep to water, slow refill.	Floods----------	Not needed-----	Erodes easily.
DeC2*:						
Demopolis--------	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Not needed-----	Depth to rock, erodes easily, slope.	Erodes easily, rooting depth, slope.
Binnsville-------	Severe: depth to rock.	Severe: depth to rock, compressible.	Severe: depth to rock.	Depth to rock--	Depth to rock, percs slowly.	Rooting depth, percs slowly.
Gr----------------Griffith	Slight----------	Moderate: hard to pack, wetness.	Severe: slow refill.	Percs slowly, floods.	Percs slowly, wetness.	Percs slowly.
Gu, Gy------------Guyton	Slight----------	Moderate: erodes easily, low strength, compressible.	Severe: no water.	Cutbanks cave, floods, percs slowly.	Not needed-----	Wetness.
Je----------------Jena	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed-----	Not needed-----	Erodes easily.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
JM*:						
Jena	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Not needed	Erodes easily.
Mantachie	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, floods.	Not needed	Wetness.
Kn Kinston	Moderate: seepage.	Moderate: piping.	Slight	Poor outlets, floods.	Not needed	Not needed.
KpA, KpB2, KpC2 Kipling	Slight	Moderate: unstable fill.	Severe: no water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
La, Lb Latonia	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed	Favorable	Favorable.
Ld*:						
Latonia	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed	Favorable	Favorable.
Urban land.						
Le Leeper	Slight	Moderate: unstable fill, compressible.	Severe: deep to water.	Floods, wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Ma Mantachie	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, floods.	Not needed	Wetness.
NJ*:						
Nugent	Severe: seepage.	Moderate: piping, seepage.	Severe: deep to water.	Floods	Erodes easily	Erodes easily, droughty.
Jena	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Not needed	Erodes easily.
OkA, OkB Okolona	Slight	Moderate: shrink-swell, unstable fill.	Severe: no water.	Percs slowly, slope.	Percs slowly	Favorable.
Pa Paden	Moderate: seepage.	Slight	Severe: no water.	Percs slowly	Favorable	Favorable.
Ph Pheba	Moderate: seepage.	Moderate: seepage.	Severe: no water.	Wetness, percs slowly.	Not needed	Favorable.
PkC2 Pikeville	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed	Erodes easily, slope.	Erodes easily, slope.
PsD2*:						
Pikeville	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed	Erodes easily, slope.	Erodes easily, slope.
Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
Pt*. Pits						
PuA Prentiss	Moderate: seepage.	Moderate: wetness.	Severe: no water.	Favorable	Wetness, rooting depth.	Rooting depth.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
PuB Prentiss	Moderate: seepage.	Moderate: wetness.	Severe: no water.	Not needed	Wetness, rooting depth.	Rooting depth.
Pw*: Prentiss	Moderate: seepage.	Moderate: wetness.	Severe: no water.	Favorable	Wetness, rooting depth.	Rooting depth.
Urban land.						
Ro Rosella	Slight	Moderate: low strength, piping.	Severe: no water.	Wetness, floods.	Not needed	Percs slowly.
RuC2 Ruston	Moderate: seepage.	Slight	Severe: no water.	Not needed	Favorable	Slope.
SaA Savannah	Moderate: seepage.	Moderate: low strength, piping.	Severe: deep to water.	Percs slowly	Percs slowly, erodes easily.	Percs slowly.
SaB, SaC2 Savannah	Moderate: seepage.	Moderate: low strength, piping.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, erodes easily.	Percs slowly.
Se Sessum	Slight	Moderate: shrink-swell.	Severe: no water.	Percs slowly	Percs slowly, wetness.	Percs slowly, wetness.
SmD, SmF Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
SnF*, SR*: Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
Saffell	Moderate: seepage.	Moderate: seepage, piping, thin layer.	Severe: no water.	Not needed	Erodes easily, slope, small stones.	Droughty, erodes easily, slope.
SsF*: Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
Sweatman	Moderate: seepage.	Moderate: low strength.	Severe: no water.	Complex slope	Slope, erodes easily.	Slope, erodes easily.
St Steens	Slight	Moderate: wetness.	Severe: no water, slow refill.	Favorable	Not needed	Wetness.
SuB2, SuC2 Sumter	Slight	Moderate: shrink-swell, low strength, compressible.	Severe: deep to water.	Not needed	Complex slope, depth to rock, percs slowly.	Favorable.
SvD3*: Sumter	Slight	Moderate: shrink-swell, low strength, compressible.	Severe: deep to water.	Not needed	Complex slope, depth to rock, percs slowly.	Favorable.
Demopolis	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Not needed	Depth to rock, erodes easily, slope.	Erodes easily, rooting depth, slope.
Chalk outcrop.						

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
Ts: Tuscumbia	Slight	Moderate: unstable fill.	Severe: deep to water, slow refill.	Floods, percs slowly.	Not needed	Percs slowly, wetness.
Ur*. Urban land						
VaA, VaB2, VaC2: Vaiden	Slight	Moderate: low strength, shrink-swell.	Severe: no water.	Percs slowly	Percs slowly, slope.	Percs slowly, slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
An------ Annemaine	Moderate: percs slowly.	Moderate: floods.	Moderate: percs slowly, floods.	Slight------	Moderate: wetness, floods.
BrA, BrB------ Brooksville	Severe: percs slowly, wetness.	Moderate: wetness, too clayey.	Severe: percs slowly, wetness, too clayey.	Moderate: wetness, too clayey.	Severe: too clayey.
CaA------ Cahaba	Slight------	Slight------	Slight------	Slight------	Slight.
CaB------ Cahaba	Slight------	Slight------	Moderate: slope.	Slight------	Slight.
CbA------ Cahaba	Severe: floods.	Slight------	Moderate: floods.	Slight------	Moderate: floods.
CbB------ Cahaba	Severe: floods.	Slight------	Moderate: floods, slope.	Slight------	Moderate: floods.
CL*:					
Cahaba------	Severe: floods.	Slight------	Moderate: floods.	Slight------	Moderate: floods.
Latonia------	Severe: floods.	Slight------	Moderate: floods.	Moderate: floods.	Moderate: floods, too sandy.
CoA------ Caledonia	Slight------	Slight------	Slight------	Slight------	Slight.
CoB------ Caledonia	Slight------	Slight------	Moderate: slope.	Slight------	Slight.
CoC2------ Caledonia	Slight------	Slight------	Severe: slope.	Slight------	Slight.
Cp------ Catalpa	Severe: floods.	Severe: too clayey.	Severe: floods.	Moderate: too clayey, floods.	Severe: too clayey, floods.
CT*:					
Catalpa------	Severe: floods.	Severe: too clayey.	Severe: floods.	Moderate: too clayey, floods.	Severe: too clayey, floods.
Leeper------	Severe: wetness, floods, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, floods, percs slowly.	Severe: too clayey, floods, wetness.	Severe: too clayey, floods.
Cu------ Columbus	Severe: floods.	Moderate: wetness.	Severe: floods.	Slight------	Severe: floods.
DeC2*:					
Demopolis------	Moderate: too clayey, slope.	Moderate: too clayey, slope.	Severe: depth to rock, slope.	Moderate: too clayey.	Severe: thin layer.
Binnsville------	Moderate: percs slowly, too clayey.	Moderate: too clayey.	Severe: depth to rock.	Moderate: too clayey.	Severe: thin layer.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Gr-------------------- Griffith	Severe: floods, percs slowly, too clayey.	Severe: too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey, floods.
Gu, Gy---------------- Guyton	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Je-------------------- Jena	Severe: floods.	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.
JM*:					
Jena------------------	Severe: floods.	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Mantachie-------------	Severe: floods.	Moderate: wetness, floods.	Severe: floods.	Moderate: wetness.	Severe: floods.
Kn-------------------- Kinston	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
KpA, KpB2------------- Kipling	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
KpC2------------------ Kipling	Moderate: percs slowly, wetness.	Moderate: wetness.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
La-------------------- Latonia	Slight----------	Slight----------	Slight----------	Slight------------	Moderate: too sandy.
Lb-------------------- Latonia	Severe: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods, too sandy.
Ld*:					
Latonia---------------	Slight----------	Slight----------	Slight----------	Slight------------	Moderate: too sandy.
Urban land.					
Le-------------------- Leeper	Severe: wetness, floods, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, floods, percs slowly.	Severe: too clayey, floods, wetness.	Severe: too clayey, floods, wetness.
Ma-------------------- Mantachie	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: floods.
NJ*:					
Nugent----------------	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.	Severe: floods.
Jena------------------	Severe: floods.	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.
OkA, OkB-------------- Okolona	Severe: percs slowly, too clayey.	Severe: too clayey.	Severe: percs slowly, too clayey.	Severe: too clayey.	Severe: too clayey.
Pa-------------------- Paden	Slight----------	Slight----------	Slight----------	Slight------------	Moderate: wetness.
Ph-------------------- Pheba	Moderate: percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
PkC2------------------ Pikeville	Slight----------	Slight----------	Severe: slope.	Slight-----------	Slight.
PsD2*:					
Pikeville------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----------	Moderate: slope.
Smithdale------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----------	Moderate: slope.
Pt*. Pits					
PuA------------------ Prentiss	Slight----------	Slight----------	Slight----------	Slight-----------	Slight.
PuB------------------ Prentiss	Slight----------	Slight----------	Moderate: slope.	Slight-----------	Slight.
Pw*:					
Prentiss-------------	Slight----------	Slight----------	Slight----------	Slight-----------	Slight.
Urban land.					
Ro------------------- Rosella	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.
RuC2----------------- Ruston	Slight----------	Slight----------	Severe: slope.	Slight-----------	Slight.
SaA------------------ Savannah	Slight----------	Slight----------	Slight----------	Slight-----------	Moderate: wetness.
SaB------------------ Savannah	Slight----------	Slight----------	Moderate: slope.	Slight-----------	Moderate: wetness.
SaC2----------------- Savannah	Slight----------	Slight----------	Severe: slope.	Slight-----------	Moderate: wetness.
Se------------------- Sessum	Severe: percs slowly, wetness, too clayey.	Severe: wetness, too clayey.	Severe: percs slowly, wetness, too clayey.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
SmD------------------ Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----------	Moderate: slope.
SmF------------------ Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SnF*, SR*:					
Smithdale------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Saffell--------------	Severe: slope.	Severe: slope.	Severe: small stones, slope.	Severe: slope.	Severe: slope.
SsF*:					
Smithdale------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sweatman-------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
St: Steens	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
SuB2: Sumter	Moderate: too clayey.	Moderate: too clayey.	Moderate: percs slowly, too clayey.	Moderate: too clayey.	Moderate: thin layer.
SuC2: Sumter	Moderate: too clayey.	Moderate: too clayey.	Severe: slope.	Moderate: too clayey.	Moderate: thin layer.
SvD3*:					
Sumter	Moderate: slope, too clayey.	Moderate: slope, too clayey.	Severe: slope.	Moderate: too clayey.	Moderate: slope, thin layer.
Demopolis	Moderate: too clayey, slope.	Moderate: too clayey, slope.	Severe: depth to rock, slope.	Moderate: too clayey.	Severe: thin layer.
Chalk outcrop.					
Ts: Tuscumbia	Severe: wetness, floods, percs slowly.	Severe: wetness.	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods, too clayey.
Ur*. Urban land					
VaA, VaB2: Vaiden	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
VaC2: Vaiden	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey, percs slowly, slope.	Severe: too clayey.	Severe: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
An-----------------Annemaine	Good	Good	Good	Good	Good	---	Good	Good	Good	Good	Poor	---
BrA----------------Brooksville	Fair	Good	Fair	Poor	Good	---	Fair	Fair	Fair	Good	Fair	---
BrB----------------Brooksville	Fair	Good	Fair	Poor	Good	---	Fair	Fair	Fair	Good	Fair	---
CaA, CaB, CbA, CbB-Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	---
CL*:												
Cahaba------------	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	---
Latonia-----------	Good	Good	Good	Good	Poor	---	Very poor	Very poor	Good	Good	Very poor	---
CoA, CoB-----------Caledonia	Good	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor	---
CoC2---------------Caledonia	Fair	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor	---
Cp-----------------Catalpa	Fair	Fair	Fair	Good	---	Good	Fair	Fair	Fair	Good	Fair	---
CT*:												
Catalpa-----------	Poor	Fair	Fair	Good	---	Good	Fair	Fair	Fair	Good	Fair	---
Leeper------------	Poor	Fair	Fair	Good	---	Good	Fair	Good	Fair	Good	Fair	---
Cu-----------------Columbus	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	---
DeC2*:												
Demopolis---------	Poor	Poor	Poor	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
Binnsville--------	Poor	Poor	Fair	Fair	Fair	---	Poor	Very poor	Poor	Fair	Very poor	---
Gr-----------------Griffith	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Gu, Gy-------------Guyton	Fair	Fair	Fair	Fair	---	---	Good	Good	Fair	Fair	Good	---
Je-----------------Jena	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
JM*:												
Jena--------------	Poor	Fair	Fair	Good	Good	---	Poor	Poor	Fair	Good	Poor	---
Mantachie---------	Poor	Fair	Fair	Good	---	---	Fair	Fair	Fair	Good	Fair	---
Kn-----------------Kinston	Very poor	Poor	Poor	Poor	Poor	---	Good	Fair	Poor	Poor	Fair	---
KpA----------------Kipling	Fair	Good	Good	Good	---	---	Fair	Fair	Good	Good	Fair	---

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
KpB2--------------- Kipling	Fair	Good	Good	Good	---	---	Poor	Fair	Good	Good	Poor	---
KpC2--------------- Kipling	Fair	Good	Good	Good	---	---	Very poor	Very poor	Good	Good	Very poor	---
La, Lb------------- Latonia	Good	Good	Good	Good	Poor	---	Very poor	Very poor	Good	Good	Very poor	---
Ld*:												
Latonia-----------	Good	Good	Good	Good	Poor	---	Very poor	Very poor	Good	Good	Very poor	---
Urban land.												
Le----------------- Leeper	Good	Good	Fair	Good	---	Good	Fair	Good	Good	Good	Fair	---
Ma----------------- Mantachie	Fair	Good	Good	Good	---	---	Fair	Fair	Good	Good	Fair	---
NJ*:												
Nugent------------	Poor	Poor	Fair	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
Jena--------------	Poor	Fair	Fair	Good	Good	---	Poor	Poor	Fair	Good	Poor	---
OkA, OkB----------- Okolona	Good	Good	Fair	Poor	Good	---	Poor	Very poor	Good	Good	Very poor	---
Pa----------------- Paden	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Ph----------------- Pheba	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
PkC2--------------- Pikeville	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
PsD2*:												
Pikeville---------	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
Smithdale---------	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
Pt*. Pits												
PuA, PuB----------- Prentiss	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Pw*:												
Prentiss----------	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Urban land.												
Ro----------------- Rosella	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
RuC2--------------- Ruston	Fair	Good	Good	---	Good	---	Very poor	Very poor	Good	Good	Very poor	---
SaA, SaB----------- Savannah	Good	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor	---

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
SaC2----------------Savannah	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
Se------------------Sessum	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
SmD-----------------Smithdale	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
SmF-----------------Smithdale	Very poor	Fair	Good	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
SnF*, SR*:												
Smithdale----------	Very poor	Fair	Good	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
Saffell------------	Very poor	Fair	Fair	Fair	Fair	---	Very poor	Very poor	Poor	Fair	Very poor	---
SsF*:												
Smithdale----------	Very poor	Fair	Good	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
Sweatman-----------	Poor	Fair	Good	Good	---	---	Very poor	Very poor	Fair	Good	Very poor	---
St------------------Steens	Good	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor	---
SuB2----------------Sumter	Fair	Fair	Fair	Good	Good	---	Poor	Very poor	Fair	Good	Very poor	---
SuC2----------------Sumter	Fair	Fair	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
SvD3*:												
Sumter-------------	Fair	Fair	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
Demopolis----------	Poor	Poor	Poor	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
Chalk outcrop.												
Ts------------------Tuscumbia	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
Ur*. Urban land												
VaA-----------------Vaiden	Fair	Fair	Fair	Good	Good	---	Poor	Fair	Fair	Good	Poor	---
VaB2, VaC2----------Vaiden	Fair	Fair	Fair	Good	Good	---	Poor	Poor	Fair	Good	Poor	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
An-----------------Annemaine	0-5	Loam------------	SM, SM-SC, ML, CL-ML	A-4	0	95-100	95-100	70-95	40-75	<20	NP-5
	5-25	Clay, clay loam	CL	A-6, A-7	0	95-100	95-100	85-100	70-98	30-50	10-25
	25-33	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	95-100	95-100	80-100	36-80	20-35	8-15
	33-60	Sandy clay loam, fine sandy loam, sandy loam.	SM, SM-SC, SC	A-2, A-4	0	95-100	95-100	60-90	30-50	<20	NP-10
BrA, BrB-----------Brooksville	0-17	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-95	46-60	25-36
	17-80	Silty clay, clay	CH	A-7	0	100	100	95-100	90-95	50-70	36-65
CaA, CaB, CbA, CbB-Cahaba	0-7	Fine sandy loam	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	---	NP
	7-24	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	24-80	Sand, loamy sand, fine sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
CL*:											
Cahaba------------	0-7	Fine sandy loam	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	---	NP
	7-24	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	24-80	Sand, loamy sand, fine sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
Latonia-----------	0-7	Loamy sand------	SM	A-2-4	0	90-100	85-100	50-80	15-35	---	NP
	7-42	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	0	90-100	85-100	60-85	30-50	---	NP
	42-70	Sand, loamy sand	SM, SP-SM	A-2-4	0	90-100	85-100	50-75	10-30	---	NP
CoA, CoB, CoC2-----Caledonia	0-7	Silt loam-------	ML, CL-ML, CL	A-4	0	100	100	90-100	85-90	<30	NP-10
	7-26	Silt loam, clay loam, loam.	CL	A-6, A-7	0	100	100	85-100	60-80	30-44	11-20
	26-86	Clay loam, sandy clay loam, loam.	CL, SC	A-6	0	100	100	80-100	45-80	25-40	11-20
Cp-----------------Catalpa	0-5	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-100	45-52	24-30
	5-60	Silty clay, clay, silty clay loam.	CH	A-7	0	100	100	95-100	85-100	50-75	28-50
CT*:											
Catalpa-----------	0-5	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-100	45-52	24-30
	5-60	Silty clay, clay, silty clay loam.	CH	A-7	0	100	100	95-100	85-100	50-75	28-50
Leeper------------	0-8	Silty clay------	CH, CL	A-7	0	100	100	90-100	80-95	45-70	25-45
	8-60	Clay, silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	80-97	52-75	30-50

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Cu: Columbus	0-6	Silt loam	ML, CL-ML, CL	A-4	0	100	100	90-100	70-90	<30	3-10
	6-52	Clay loam, loam, sandy clay loam.	CL, SC	A-4, A-6	0	100	90-100	80-95	40-80	22-35	8-15
	52-76	Fine sandy loam, loamy sand, sand.	SM, SP-SM	A-2, A-4	0	100	90-100	50-85	10-45	<20	NP-4
DeC2*: Demopolis	0-7	Silty clay loam	CL, ML, CL-ML	A-4, A-6, A-7	0	85-100	75-90	65-85	50-80	24-44	6-20
	7-12	Gravelly loam, gravelly clay loam, gravelly silty clay loam.	GC, GM-GC, GP-GC	A-2, A-1	0	20-30	15-25	10-20	8-15	18-38	4-14
	12-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Binnsville	0-7	Silty clay loam	CL, CH	A-7	0	90-100	80-100	75-100	70-95	44-57	22-32
	7-11	Silty clay loam, silty clay.	CL, CH	A-7	10-20	60-90	60-90	60-90	60-90	44-57	22-32
	11-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Gr: Griffith	0-7	Silty clay	CL, CH	A-7	0	100	95-100	95-100	85-95	45-55	24-32
	7-65	Silty clay, clay	CH	A-7	0	100	95-100	75-95	75-95	55-78	32-50
Gu: Guyton	0-18	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	18-42	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	95-100	75-95	26-40	6-18
	42-75	Silt loam, silty clay loam, clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	65-95	<40	NP-18
Gy: Guyton	0-10	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	10-80	Silt loam, silty clay loam, sandy clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	65-95	<40	NP-18
Je: Jena	0-5	Loam	ML, CL-ML	A-4	0	100	100	85-95	60-75	<22	NP-4
	5-60	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
JM*: Jena	0-5	Loam	ML, CL-ML	A-4	0	100	100	85-95	60-75	<22	NP-4
	5-60	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
Mantachie	0-8	Sandy loam	CL-ML, SM-SC, SM, ML	A-4	0-5	95-100	90-100	60-85	40-60	<20	NP-5
	8-72	Loam, clay loam, sandy clay loam.	CL, SC, SM-SC, CL-ML	A-4, A-6	0-5	95-100	90-100	80-95	45-80	20-40	5-15
Kn: Kinston	0-7	Loam	ML, CL, CL-ML	A-4	0	100	98-100	85-97	65-97	17-35	4-10
	7-65	Loam, clay loam, sandy clay loam.	CL	A-4, A-6	0	100	95-100	75-95	60-95	20-40	8-18

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
KpA, KpB2, KpC2----Kipling	0-5	Silty clay loam	CL, ML	A-6, A-4, A-7	0	100	100	90-100	70-95	20-45	3-25
	5-48	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	100	100	95-100	85-95	38-70	16-45
	48-81	Clay, silty clay	CH, CL	A-7	0	100	100	90-100	75-95	48-80	26-50
La, Lb-------------Latonia	0-7	Loamy sand------	SM	A-2-4	0	90-100	85-100	50-80	15-35	---	NP
	7-42	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	0	90-100	85-100	60-85	30-50	---	NP
	42-70	Sand, loamy sand	SM, SP-SM	A-2-4	0	90-100	85-100	50-75	10-30	---	NP
Ld*:											
Latonia-----------	0-7	Loamy sand------	SM	A-2-4	0	90-100	85-100	50-80	15-35	---	NP
	7-42	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	0	90-100	85-100	60-85	30-50	---	NP
	42-70	Sand, loamy sand	SM, SP-SM	A-2-4	0	90-100	85-100	50-75	10-30	---	NP
Urban land.											
Le-----------------Leeper	0-8	Silty clay------	CH, CL	A-7	0	100	100	90-100	80-95	45-70	25-45
	8-60	Clay, silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	80-97	52-75	30-50
Ma-----------------Mantachie	0-8	Loam------------	CL-ML, SM-SC, SM, ML	A-4	0-5	95-100	90-100	60-85	40-60	<20	NP-5
	8-72	Loam, clay loam, sandy clay loam.	CL, SC, SM-SC, CL-ML	A-4, A-6	0-5	95-100	90-100	80-95	45-80	20-40	5-15
NJ*:											
Nugent------------	0-10	Loamy sand------	SM, SP-SM	A-2	0	85-100	75-100	50-100	10-30	---	NP
	10-61	Stratified loamy sand to fine sandy loam.	SM, SP-SM	A-2	0	85-100	75-100	60-100	10-30	<25	NP-3
Jena--------------	0-5	Loam------------	ML, CL-ML	A-4	0	100	100	85-95	60-75	<22	NP-4
	5-60	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
OkA, OkB-----------Okolona	0-7	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-95	46-55	25-32
	7-72	Silty clay, clay	CH	A-7	0	95-100	95-100	95-100	90-95	60-90	36-65
	72-76	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Pa-----------------Paden	0-6	Silt loam-------	ML, CL, CL-ML	A-4	0	95-100	90-100	85-95	75-90	15-30	3-10
	6-29	Silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	95-100	90-100	85-95	75-95	25-40	6-15
	29-51	Silt loam, clay loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	95-100	90-100	85-95	70-90	25-40	6-15
	51-70	Clay loam, clay, sandy clay loam.	CL, SC, GC	A-6, A-7	0-10	60-100	50-100	45-90	36-90	34-50	13-25
Ph-----------------Pheba	0-4	Silt loam-------	ML, CL, CL-ML	A-4	0	100	100	85-100	55-90	<25	NP-8
	4-31	Silt loam, loam	ML, CL, CL-ML	A-4	0	100	100	90-100	75-90	<25	NP-8
	31-70	Silt loam, loam, silty clay loam.	CL, ML	A-6, A-4	0	100	100	90-100	75-95	30-40	11-16

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
PkC2----------------- Pikeville	0-4	Sandy loam------	SM, ML	A-4	0	90-100	90-100	50-85	36-60	<30	NP-4
	4-21	Sandy clay loam, loam, gravelly loam.	SC, CL, SM-SC	A-4, A-6	0	80-100	65-100	60-90	36-60	20-40	4-17
	21-70	Gravelly sandy loam, gravelly loamy sand, gravelly sandy clay loam.	GW-GM, GM, SW-SM, SM	A-1-B, A-2, A-4, A-6	0	35-90	20-85	15-75	9-45	25-48	2-18
PsD2*: Pikeville---------	0-4	Sandy loam------	SM, ML	A-4	0	90-100	90-100	50-85	36-60	<30	NP-4
	4-21	Sandy clay loam, loam, gravelly loam.	SC, CL, SM-SC	A-4, A-6	0	80-100	65-100	60-90	36-60	20-40	4-17
	21-70	Gravelly sandy loam, gravelly loamy sand, gravelly sandy clay loam.	GW-GM, GM, SW-SM, SM	A-1-B, A-2, A-4, A-6	0	35-90	20-85	15-75	9-45	25-48	2-18
Smithdale---------	0-15	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	15-56	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	56-80	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Pt*. Pits											
PuA, PuB----------- Prentiss	0-26	Loam------------	ML, CL, CL-ML	A-4	0	100	100	75-100	50-90	<30	NP-10
	26-73	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
Pw*: Prentiss----------	0-26	Loam------------	ML, CL, CL-ML	A-4	0	100	100	75-100	50-90	<30	NP-10
	26-73	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
Urban land.											
Ro----------------- Rosella	0-10	Silt loam-------	ML, CL-ML	A-4	0	100	100	90-100	60-90	<30	NP-7
	10-80	Silt loam, loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	85-100	60-85	18-40	5-20
RuC2--------------- Ruston	0-13	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	13-24	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-18
	24-32	Fine sandy loam, sandy loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	32-80	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-18

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
SaA, SaB, SaC2-----Savannah	0-5	Silt loam-------	ML, CL-ML	A-4	0	100	100	80-100	60-90	<25	NP-7
	5-21	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19
	21-75	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-100	40-80	23-43	7-19
Se-----------------Sessum	0-5	Silty clay loam	CH, CL	A-7	0	100	100	95-100	90-95	45-65	25-40
	5-80	Clay, silty clay, silty clay loam.	CH	A-7	0	100	100	90-100	80-95	55-80	30-55
SmD, SmF-----------Smithdale	0-15	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	15-56	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	56-80	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
SnF*, SR*: Smithdale---------	0-15	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	15-56	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	56-80	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Saffell-----------	0-12	Gravelly sandy loam.	SM	A-1, A-2, A-4	0-5	70-80	50-75	40-65	20-40	<20	NP-3
	12-58	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly loam.	GC, SC, SM-SC, GM-GC	A-2, A-1	0-15	35-85	25-70	20-55	15-35	20-40	4-18
	58-70	Gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand.	GM, GC, SM, SC	A-1, A-2, A-3	0-5	25-80	10-70	5-60	5-35	<35	NP-15
SsF*: Smithdale---------	0-15	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	15-56	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	56-80	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Sweatman----------	0-7	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	7-26	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	26-55	Loam, clay loam	CL, ML	A-6, A-7	0	100	98-100	90-100	80-90	30-45	12-30
	55-80	Stratified weathered bedrock to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
St-----------------Steens	0-15	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	100	90-100	70-85	40-55	<25	NP-7
	15-65	Clay loam, loam, sandy clay loam.	CL, SC	A-4, A-6	0	100	90-100	80-95	40-80	22-40	8-20

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SuB2, SuC2--------- Sumter	0-7	Silty clay loam	CL, ML	A-7	0	99-100	99-100	98-100	85-90	41-50	16-25
	7-34	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	99-100	99-100	90-95	41-55	16-32
	34-70	Weathered bedrock.	CH, CL	A-7	0	100	100	99-100	75-90	41-60	16-34
SvD3*:											
Sumter------------	0-7	Silty clay loam	CL, ML	A-7	0	99-100	99-100	98-100	85-90	41-50	16-25
	7-34	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	99-100	99-100	90-95	41-55	16-32
	34-70	Weathered bedrock.	CH, CL	A-7	0	100	100	99-100	75-90	41-60	16-34
Demopolis---------	0-7	Silty clay loam	CL, ML, CL-ML	A-4, A-6, A-7	0	85-100	75-90	65-85	50-80	24-44	6-20
	7-12	Gravelly loam, gravelly clay loam, gravelly silty clay loam.	GC, GM-GC, GP-GC	A-2, A-1	0	20-30	15-25	10-20	8-15	18-38	4-14
	12-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Chalk outcrop.											
Ts---------------- Tuscumbia	0-6	Silty clay------	CL	A-7, A-6	0	100	100	90-100	75-90	35-50	15-25
	6-62	Clay, silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	80-95	51-75	30-50
Ur*. Urban land											
VaA, VaB2, VaC2---- Vaiden	0-5	Silty clay------	MH, CH	A-7	0	100	100	95-100	70-100	50-70	20-35
	5-23	Clay------------	CH, MH	A-7	0	100	100	95-100	85-100	50-90	30-50
	23-76	Clay------------	CH, MH	A-7	0	100	90-100	90-100	85-95	50-90	30-52

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
An---------------- Annemaine	0-5	---	---	0.6-2.0	0.12-0.16	4.5-6.5	Low-----------	0.43	4	---	---
	5-25	---	---	0.06-0.2	0.14-0.18	4.5-5.5	Moderate------	0.37			
	25-33	---	---	0.2-0.6	0.14-0.18	4.5-5.5	Low-----------	0.37			
	33-60	---	---	0.2-2.0	0.14-0.18	4.5-5.5	Low-----------	0.32			
BrA, BrB--------- Brooksville	0-17	---	---	0.06-0.2	0.20-0.22	5.1-6.5	Very high-----	0.37	4	---	---
	17-80	---	---	<0.06	0.18-0.20	6.6-8.4	Very high-----	0.32			
CaA, CaB, CbA, CbB------------- Cahaba	0-7	---	---	2.0-6.0	0.05-0.14	4.5-6.0	Very low------	0.24	4	---	---
	7-24	---	---	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.28			
	24-80	---	---	6.0-20	0.05-0.10	4.5-6.0	Very low------	0.24			
CL*:											
Cahaba-----------	0-7	---	---	2.0-6.0	0.05-0.14	4.5-6.0	Very low------	0.24	4	---	---
	7-24	---	---	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.28			
	24-80	---	---	6.0-20	0.05-0.10	4.5-6.0	Very low------	0.24			
Latonia----------	0-7	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low------	0.17	4	---	---
	7-42	---	---	2.0-6.0	0.10-0.15	4.5-5.5	Low-----------	0.20			
	42-70	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low------	0.17			
CoA, CoB, CoC2--- Caledonia	0-7	---	---	0.6-2.0	0.20-0.22	5.6-7.3	Low-----------	0.37	5	---	---
	7-26	---	---	0.6-2.0	0.15-0.20	4.5-7.3	Moderate------	0.37			
	26-86	---	---	0.6-2.0	0.15-0.20	4.5-6.0	Moderate------	0.37			
Cp---------------- Catalpa	0-5	---	---	0.2-0.6	0.19-0.22	6.1-8.4	Moderate------	0.28	5	---	---
	5-60	---	---	0.06-0.2	0.18-0.20	6.1-8.4	High----------	0.28			
CT*:											
Catalpa----------	0-5	---	---	0.2-0.6	0.19-0.22	6.1-8.4	Moderate------	0.28	5	---	---
	5-60	---	---	0.06-0.2	0.18-0.20	6.1-8.4	High----------	0.28			
Leeper-----------	0-8	---	---	0.06-0.2	0.18-0.22	5.6-8.4	High----------	0.28	5	---	---
	8-60	---	---	<0.06	0.18-0.20	5.6-8.4	High----------	0.28			
Cu---------------- Columbus	0-6	10-16	1.50-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.37	4	---	2-3
	6-52	18-33	1.55-1.60	0.6-2.0	0.12-0.15	4.5-5.5	Low-----------	0.20			
	52-76	6-12	1.35-1.40	6.0-20	0.05-0.10	4.5-5.5	Low-----------	0.17			
DeC2*:											
Demopolis--------	0-7	---	---	0.2-0.6	0.15-0.18	7.4-8.4	Moderate------	0.37	1	---	---
	7-12	---	---	0.2-0.6	0.10-0.15	7.4-8.4	Low-----------	0.32			
	12-40	---	---	---	---	7.4-8.4	Low-----------	---			
Binnsville-------	0-7	---	---	0.06-0.2	0.15-0.18	7.4-8.4	Moderate------	0.37	1	---	---
	7-11	---	---	0.06-0.2	0.12-0.16	7.4-8.4	Moderate------	0.37			
	11-40	---	---	---	---	---	--------------	---			
Gr---------------- Griffith	0-7	35-45	1.30-1.40	<0.06	0.18-0.20	6.6-8.4	High----------	0.28	5	---	---
	7-65	42-50	1.35-1.45	<0.06	0.15-0.18	6.6-8.4	Very high-----	0.28			
Gu---------------- Guyton	0-18	---	---	0.6-2.0	0.20-0.23	4.5-6.0	Low-----------	0.49	3	---	---
	18-42	---	---	0.06-0.2	0.15-0.22	4.5-5.5	Low-----------	0.37			
	42-75	---	---	0.06-2.0	0.15-0.22	5.1-8.4	Low-----------	0.37			
Gy---------------- Guyton	0-10	---	---	0.6-2.0	0.20-0.23	4.5-6.0	Low-----------	0.49	3	---	---
	10-80	---	---	0.06-2.0	0.15-0.22	5.1-8.4	Low-----------	0.37			
Je---------------- Jena	0-5	---	---	0.6-2.0	0.12-0.20	4.5-6.0	Low-----------	0.37	5	---	---
	5-60	---	---	0.6-2.0	0.10-0.20	4.5-5.5	Low-----------	0.28			

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
JM*:											
Jena	0-5	---	---	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.37	5	---	---
	5-60	---	---	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28			
Mantachie	0-8	---	---	0.6-2.0	0.16-0.20	4.5-5.5	Low	0.28	5	---	---
	8-72	---	---	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.28			
Kn: Kinston	0-7	---	---	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.24	---	---	---
	7-65	---	---	0.6-2.0	0.14-0.18	4.5-5.5	Low	0.32			
KpA, KpB2, KpC2: Kipling	0-5	---	---	0.06-0.2	0.20-0.22	3.6-6.0	Moderate	0.32	4	---	---
	5-48	---	---	0.6-0.2	0.20-0.22	3.6-8.4	Very high	0.32			
	48-81	---	---	>0.06	0.18-0.20	5.1-8.4	-------------	0.32			
La, Lb: Latonia	0-7	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low	0.17	4	---	---
	7-42	---	---	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.20			
	42-70	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low	0.17			
Ld*:											
Latonia	0-7	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low	0.17	4	---	---
	7-42	---	---	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.20			
	42-70	---	---	6.0-20	0.05-0.10	4.5-5.5	Very low	0.17			
Urban land.											
Le: Leeper	0-8	---	---	0.06-0.2	0.18-0.22	5.6-8.4	High	0.28	5	---	---
	8-60	---	---	<0.06	0.18-0.20	5.6-8.4	High	0.28			
Ma: Mantachie	0-8	---	---	0.6-2.0	0.16-0.20	4.5-5.5	Low	0.28	5	---	---
	8-72	---	---	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.28			
NJ*:											
Nugent	0-10	---	---	6.0-20	0.05-0.10	4.5-6.5	Low	0.17	5	---	---
	10-61	---	---	2.0-6.0	0.05-0.10	4.5-6.5	Low	0.17			
Jena	0-5	---	---	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.37	5	---	---
	5-60	---	---	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28			
OkA, OkB: Okolona	0-7	---	---	<0.06	0.20-0.22	6.6-8.4	High	0.37	4	---	---
	7-72	---	---	<0.06	0.18-0.20	6.6-8.4	Very high	0.32			
	72-76	---	---	---	---	---	-------------	---			
Pa: Paden	0-6	---	---	0.6-2.0	0.18-0.22	4.5-5.5	Low	0.43	3	---	---
	6-29	---	---	0.6-2.0	0.17-0.20	4.5-5.5	Low	0.43			
	29-51	---	---	0.06-0.2	0.07-0.12	4.5-5.5	Low	0.43			
	51-70	---	---	0.6-2.0	0.07-0.12	4.5-5.5	Low	0.26			
Ph: Pheba	0-4	---	---	0.6-2.0	0.16-0.22	4.5-5.5	Low	0.49	3	---	---
	4-31	---	---	0.6-2.0	0.16-0.22	4.5-5.5	Low	0.49			
	31-70	---	---	0.2-0.6	0.05-0.10	4.5-5.5	Low	0.43			
PkC2: Pikeville	0-4	---	---	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24	4	---	---
	4-21	---	---	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.37			
	21-70	---	---	2.0-6.0	0.05-0.10	4.5-5.5	Low	0.10			
PsD2*:											
Pikeville	0-4	---	---	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24	4	---	---
	4-21	---	---	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.37			
	21-70	---	---	2.0-6.0	0.05-0.10	4.5-5.5	Low	0.10			
Smithdale	0-15	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---	---
	15-56	---	---	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24			
	56-80	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28			
Pt*. Pits											

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
PuA, PuB--------- Prentiss	0-26	---	---	0.6-2.0	0.12-0.16	4.5-5.5	Low-----------	0.24	3	---	---
	26-73	---	---	0.2-0.6	0.06-0.09	4.5-5.5	Low-----------	0.24			
Pw*:											
Prentiss---------	0-26	---	---	0.6-2.0	0.12-0.16	4.5-5.5	Low-----------	0.24	3	---	---
	26-73	---	---	0.2-0.6	0.06-0.09	4.5-5.5	Low-----------	0.24			
Urban land.											
Ro--------------- Rosella	0-10	---	---	0.06-0.2	0.15-0.18	4.5-6.0	Low-----------	0.43	3	---	---
	10-80	---	---	0.06-0.2	0.15-0.18	4.5-6.0	Low-----------	0.43			
RuC2------------- Ruston	0-13	---	---	0.6-2.0	0.09-0.16	5.1-6.5	Low-----------	0.32	5	---	---
	13-24	---	---	0.6-2.0	0.12-0.17	4.5-6.0	Low-----------	0.28			
	24-32	---	---	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.32			
	32-80	---	---	0.6-2.0	0.12-0.17	4.5-6.0	Low-----------	0.28			
SaA, SaB, SaC2--- Savannah	0-5	---	---	0.6-2.0	0.16-0.20	4.0-5.5	Low-----------	0.37	3	---	---
	5-21	---	---	0.6-2.0	0.13-0.20	4.0-5.5	Low-----------	0.28			
	21-75	---	---	0.2-0.6	0.05-0.10	4.0-5.5	Low-----------	0.24			
Se--------------- Sessum	0-5	---	---	0.06-0.20	0.18-0.20	4.5-6.0	High----------	0.37	3	---	---
	5-80	---	---	<0.06	0.17-0.19	4.5-6.0	Very high----	0.32			
SmD, SmF--------- Smithdale	0-15	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28	5	---	---
	15-56	---	---	0.6-2.0	0.15-0.17	4.5-5.5	Low-----------	0.24			
	56-80	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28			
SnF*, SR*:											
Smithdale--------	0-15	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28	5	---	---
	15-56	---	---	0.6-2.0	0.15-0.17	4.5-5.5	Low-----------	0.24			
	56-80	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28			
Saffell----------	0-12	---	---	2.0-6.0	0.05-0.10	4.5-5.5	Low-----------	0.20	4	---	---
	12-58	---	---	0.6-2.0	0.06-0.12	4.5-5.5	Low-----------	0.28			
	58-70	---	---	0.6-6.0	0.04-0.11	4.5-5.5	Low-----------	0.17			
SsF*:											
Smithdale--------	0-15	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28	5	---	---
	15-56	---	---	0.6-2.0	0.15-0.17	4.5-5.5	Low-----------	0.24			
	56-80	---	---	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28			
Sweatman---------	0-7	---	---	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.37	3	---	---
	7-26	---	---	0.2-0.6	0.16-0.20	4.5-5.5	Moderate------	0.28			
	26-55	---	---	0.2-0.6	0.16-0.20	4.5-5.5	Moderate------	0.28			
	55-80	---	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate------	---			
St--------------- Steens	0-15	8-14	1.50-1.55	0.6-2.0	0.10-0.15	4.5-6.5	Low-----------	0.28	4	---	2-3
	15-65	20-35	1.60-1.70	0.2-0.6	0.10-0.18	4.5-6.0	Low-----------	0.20			
SuB2, SuC2------- Sumter	0-7	---	---	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37	3	---	---
	7-34	---	---	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37			
	34-70	---	---	---	---	---	--------------	---			
SvD3*:											
Sumter-----------	0-7	---	---	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37	3	---	---
	7-34	---	---	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37			
	34-70	---	---	---	---	---	--------------	---			
Demopolis--------	0-7	---	---	0.2-0.6	0.15-0.18	7.4-8.4	Moderate------	0.37	1	---	---
	7-12	---	---	0.2-0.6	0.10-0.15	7.4-8.4	Low-----------	0.32			
	12-40	---	---	---	---	7.4-8.4	Low-----------	---			
Chalk outcrop.											
Ts--------------- Tuscumbia	0-6	---	---	0.06-0.20	0.20-0.22	5.0-8.4	High----------	0.28	3	---	---
	6-62	---	---	<0.06	0.18-0.20	5.0-8.4	Very high----	0.28			

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
Ur*. Urban land											
VaA, VaB2, VaC2-- Vaiden	0-5	---	---	0.06-0.2	0.10-0.15	4.5-6.5	High---------	0.32	4	---	---
	5-23	---	---	<0.06	0.10-0.15	4.5-6.0	Very high----	0.32			
	23-76	---	---	<0.06	0.10-0.15	4.5-7.8	Very high----	0.32			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard-ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
An: Annemaine	C	Rare to occasional.	Very brief to brief.	Jan-Mar	1.5-2.5	Apparent	Jan-Mar	>60	---	High	High.
BrA, BrB: Brooksville	D	None	---	---	2.0-4.0	Perched	Jan-Mar	>60	---	High	Moderate.
CaA, CaB: Cahaba	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
CbA, CbB: Cahaba	B	Occasional	Brief	Nov-Feb	>6.0	---	---	>60	---	Moderate	Moderate.
CL*:											
Cahaba	B	Occasional	Brief	Nov-Feb	>6.0	---	---	>60	---	Moderate	Moderate.
Latonia	B	Occasional	Brief	Nov-Feb	>6.0	---	---	>60	---	Low	Moderate.
CoA, CoB, CoC2: Caledonia	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Cp: Catalpa	C	Occasional	Brief	Dec-Apr	1.5-2.0	Apparent	Feb-Mar	>60	---	High	Low.
CT*:											
Catalpa	C	Frequent	Brief	Jan-Mar	1.5-2.0	Apparent	Feb-Mar	>60	---	High	Low.
Leeper	D	Frequent	Brief	Jan-Mar	1.0-2.0	Apparent	Jan-Mar	>60	---	High	Low.
Cu: Columbus	C	Occasional	Very brief to brief.	Nov-Apr	2.0-3.0	Apparent	Dec-Apr	>60	---	High	High.
DeC2*:											
Demopolis	C	None	---	---	>6.0	---	---	4-16	Rip-pable	Moderate	Low.
Binnsville	D	None	---	---	>6.0	---	---	6-18	Rip-pable	Moderate	Low.
Gr: Griffith	D	Occasional	Brief	Jan-Mar	1.5-2.5	Apparent	Jan-Mar	>60	---	High	Low.
Gu, Gy: Guyton	D	Occasional	Very brief to long.	Jan-Apr	0-1.5	Apparent	Dec-May	>60	---	High	Moderate.
Je: Jena	B	Occasional	Brief	Dec-Apr	>6.0	---	---	>60	---	Low	High.
JM*:											
Jena	B	Frequent	Very brief to long.	Jan-Mar	>6.0	---	---	>60	---	Low	High.
Mantachie	C	Frequent	Brief	Jan-Mar	1.0-1.5	Apparent	Dec-Mar	>60	---	High	High.
Kn: Kinston	D	Frequent	Brief	Nov-Jun	0-1.0	Apparent	Nov-Jun	>60	---	High	High.
KpA, KpB2, KpC2: Kipling	D	None	---	---	1.5-3.0	Perched	Jan-Mar	36-80	Rip-pable	High	High.
La: Latonia	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
Lb----------------- Latonia	B	Occasional--	Very brief	Nov-Apr	>6.0	---	---	>60	---	Low------	Moderate.
Ld*:											
Latonia----------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Urban land.											
Le----------------- Leeper	D	Occasional--	Brief-----	Jan-Mar	1.0-2.0	Apparent	Jan-Mar	>60	---	High-----	Low.
Ma----------------- Mantachie	C	Occasional--	Brief-----	Jan-Mar	1.0-1.5	Apparent	Dec-Mar	>60	---	High-----	High.
NJ*:											
Nugent-----------	A	Frequent----	Brief to long.	Dec-Mar	>3.5	Apparent	Jan-Apr	>60	---	Low------	Moderate.
Jena-------------	B	Frequent----	Brief to long.	Dec-Apr	>6.0	---	---	>60	---	Low------	High.
OkA, OkB---------- Okolona	D	None--------	---	---	4.0-6.0	Apparent	Jan-Mar	48-99	Rip-pable	High-----	Moderate.
Pa----------------- Paden	C	None--------	---	---	1.5-3.0	Perched	Dec-Mar	>60	---	High-----	Moderate.
Ph----------------- Pheba	C	None--------	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	High-----	High.
PkC2-------------- Pikeville	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
PsD2*:											
Pikeville--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Pt*. Pits											
PuA, PuB---------- Prentiss	C	None--------	---	---	2.0-2.5	Perched	Jan-Mar	>60	---	Moderate	High.
Pw*:											
Prentiss---------	C	None--------	---	---	2.0-2.5	Perched	Jan-Mar	>60	---	Moderate	High.
Urban land.											
Ro----------------- Rosella	D	Occasional	Very brief	Jan-Apr	0.5-1.5	Apparent	Jan-Apr	>60	---	High-----	High.
RuC2-------------- Ruston	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
SaA, SaB, SaC2---- Savannah	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
Se----------------- Sessum	D	None--------	---	---	0.5-1.5	Perched	Feb-Apr	>60	---	High-----	Moderate.
SmD, SmF---------- Smithdale	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
SnF*, SR*:											
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Saffell----------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
SsF*:											
Smithdale----------	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	Moderate.
Sweatman----------	C	None---------	---	---	>6.0	---	---	>60	---	High------	High.
St----------------- Steens	C	None---------	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	Low-------	High.
SuB2, SuC2--------- Sumter	C	None---------	---	---	>6.0	---	---	20-40	Rip-pable	Moderate	Low.
SvD3*:											
Sumter------------	C	None---------	---	---	>6.0	---	---	20-40	Rip-pable	Moderate	Low.
Chalk outcrop.											
Demopolis---------	C	None---------	---	---	>6.0	---	---	4-16	Rip-pable	Moderate	Low.
Ts----------------- Tuscumbia	D	Occasional	Brief to long.	Jan-Mar	0.5-1.5	Apparent	Dec-Apr	>60	---	High------	Low.
Ur*. Urban land											
VaA, VaB2, VaC2--- Vaiden	D	None---------	---	---	1.0-2.0	Apparent	Nov-Mar	>60	---	High------	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--CHEMICAL ANALYSES OF SELECTED SOILS

[Analyzed by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experime
of an entry indicates value is less than 0.1]

Soil series	Horizon	Depth from surface	Reaction 1:1 H_2O	Extractable cations: Calcium	Magnesium	Potassium	Sodium	Extractable acidity
		In	pH	Meq/100 g	Meq/100 g	Meq/100 g	Meq/100 g	Meq/100 g
Caledonia.	Ap	0-7	6.6	3.1	0.5	0.4	---	2.4
	B21t	7-13	6.6	5.4	1.0	0.2	---	2.2
	B22t	13-26	5.7	4.1	2.3	0.1	---	4.1
	B23t	26-50	5.5	2.8	2.6	0.1	---	4.4
	B24t	50-72	5.5	2.1	2.1	0.1	0.1	3.9
	B25t	72-86	5.3	1.2	1.9	0.1	0.1	5.9
Prentiss.	Ap	0-6	5.9	3.0	0.8	0.1	---	3.3
	B21	6-20	5.0	1.0	1.0	0.1	---	6.0
	B22	20-26	5.0	0.4	1.2	0.1	---	5.2
	Bx1	26-46	5.2	0.3	0.6	---	---	3.7
	Bx2	46-54	5.1	0.3	1.8	0.1	---	6.8
	Bx3	54-73	5.0	0.1	1.8	0.1	---	5.2
Rosella.	A1	0-2	4.8	0.2	0.2	0.1	0.1	6.6
	A2g	2-10	4.6	0.2	0.1	---	---	5.0
	B21tg	10-22	4.9	2.2	0.7	0.1	0.8	10.7
	B22tg	22-35	4.7	5.0	1.3	0.1	4.0	6.8
	B23tg	35-48	4.6	5.2	1.3	0.1	5.0	4.3
	B24t	48-63	4.5	5.6	1.4	0.1	5.2	5.8
	B25t	63-80	4.6	5.8	1.4	0.1	4.6	3.3
Steens.	A1	0-4	4.8	0.4	0.2	0.2	---	5.6
	A21g	4-7	5.4	0.4	0.1	---	---	3.1
	A22g	7-15	6.7	2.4	---	---	---	4.7
	B21t	15-20	5.6	0.6	0.7	---	0.4	5.8
	B22tg	20-35	5.2	0.8	2.5	0.1	1.6	13.4
	B23tg	35-65	5.1	1.0	3.3	0.1	1.7	9.1
Sumter.	Ap	0-7	7.5	22.8	0.6	0.9	---	1.9
	B21	7-12	7.7	21.3	0.2	0.9	---	0.2
	B22	12-34	7.9	17.5	0.3	0.9	---	---
	C1	34-46	8.0	19.0	0.2	0.9	---	---
	C2	46-70	8.0	21.5	0.2	0.9	---	---

TABLE 19.--PHYSICAL ANALYSES OF SELECTED SOILS

[Analyzed by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series	Horizon	Depth from surface	Particle size distribution: Total clay (<0.002 mm)	Total silt (0.05-0.002 mm)	Total sand (2.0-0.05 mm)
		In	Pct	Pct	Pct
Caledonia.	Ap	0-7	11.6	53.9	34.5
	B21t	7-13	23.3	58.0	18.7
	B22t	13-26	28.2	48.3	23.5
	B23t	26-50	28.5	39.4	32.1
	B24t	50-72	28.2	35.4	36.4
	B25t	72-86	29.3	27.5	43.2
Prentiss.	Ap	0-6	7.6	48.5	43.9
	B21	6-20	15.2	52.9	31.9
	B22	20-26	10.1	46.3	43.6
	Bx1	26-46	6.3	30.2	63.5
Rosella.	A1	0-2	5.1	52.1	42.8
	A2g	2-10	5.0	50.1	44.9
	B21tg	10-22	18.0	50.7	31.3
	B22tg	22-35	24.6	49.4	26.0
	B23tg	35-48	22.0	45.3	32.7
	B24t	48-63	24.5	34.2	41.3
	B25t	63-80	20.6	34.6	44.8
Steens.	A1	0-4	5.0	40.6	54.4
	A21g	4-7	5.0	46.7	48.3
	A22g	7-15	3.0	52.0	45.0
	B21t	15-20	15.7	47.4	36.9
	B22tg	20-35	25.2	38.2	36.6
	B23tg	35-65	25.7	34.8	39.5
Sumter.	Ap	0-7	37.7	43.7	18.6
	B21	7-12	47.9	40.2	11.9
	B22	12-34	57.3	30.2	12.4
	C1	34-46	50.2	42.3	7.5
	C2	46-70	46.1	38.8	15.1

TABLE 20.--ENGINEERING TEST DATA

[Tests performed by the Mississippi State Highway Department in cooperation with the Bureau of Public Roads, U
Commerce, in accordance with standard procedures of the American Association of State Highway and Transpo
(AASHTO) (1)]

Soil name and location	Parent material	Laboratory number	Depth from surface	Moisture density[1]		Mechanical analysis[2]							Liquid limit	Plasticity index
						Percentage passing sieve--			Percentage smaller than--					
				Maximum dry density	Optimum moisture	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)	0.05 mm	0.02 mm	0.005 mm	0.002 mm		
			In										Pct	
Vaiden silty clay loam: 280 feet south and 330 feet west of the northeast corner NW1/4NE1/4 sec. 15, T. 17 N., R. 17 E.	Marly clay.	1-1	0-5	90	27	100	99	97	90	78	59	55	66	31
		1-4	23-33	91	25	100	100	100	98	86	68	63	89	49
		1-6	42-65	94	27	91	90	88	88	78	64	62	81	36
Vaiden silty clay loam: 538 feet east and 552 feet north of the southwest corner SW1/4SW1/4 sec. 5, T. 18 N., R. 17 E.	Marly clay.	2-2	3-14	89	29	100	100	99	97	80	67	62	89	47
		2-4	21-38	94	26	94	92	91	91	84	68	65	86	52

[1]Based on AASHTO Designation: T 99-57, Method A (1).

[2]Mechanical analysis according to AASHTO Designation T 88-57 (1). Results by this procedure may differ s
obtained by the soil survey procedure of the Soil Conservation Service. In the AASHTO procedure, the fine mat
the hydrometer method and the various grain sized fractions are calculated on the basis of all the material, i
than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipett
material coarser than 2 millimeters in diameter is excluded from calculations of grain-sized fractions. The me
data used in this table are not suitable for naming textural classes for soils.

TABLE 21.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics of this taxadjunct that are outside the range of the series]

Soil name	Family or higher taxonomic class
Annemaine	Clayey, mixed, thermic Aquic Hapludults
Binnsville	Clayey, mixed, thermic, shallow Typic Rendolls
Brooksville	Fine, montmorillonitic, thermic Aquic Chromuderts
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Caledonia	Fine-loamy, siliceous, thermic Typic Paleudalfs
Catalpa	Fine, montmorillonitic, thermic Fluvaquentic Hapludolls
Columbus	Fine-loamy, siliceous, thermic Aquic Hapludults
Demopolis	Loamy-skeletal, carbonatic, thermic, shallow Typic Udorthents
Griffith	Fine, montmorillonitic, thermic Vertic Haplaquolls
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Jena	Coarse-loamy, siliceous, thermic Fluventic Dystrochrepts
Kinston	Fine-loamy, siliceous, acid, thermic Typic Fluvaquents
Kipling	Fine, montmorillonitic, thermic Vertic Hapludalfs
Latonia	Coarse-loamy, siliceous, thermic Typic Hapludults
Leeper	Fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Mantachie	Fine-loamy, siliceous, acid, thermic Aeric Fluvaquents
Nugent	Sandy, siliceous, thermic Typic Udifluvents
Okolona	Fine, montmorillonitic, thermic Typic Chromuderts
Paden	Fine-silty, mixed, thermic Glossic Fragiudults
Pheba	Coarse-silty, siliceous, thermic Glossaquic Fragiudults
Pikeville	Fine-loamy, siliceous, thermic Typic Paleudults
Prentiss	Coarse-loamy, siliceous, thermic Glossic Fragiudults
Rosella	Fine-loamy, siliceous, thermic Albic Glossic Natraqualfs
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Saffell	Loamy-skeletal, siliceous, thermic Typic Hapludults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Sessum	Fine, montmorillonitic, thermic Vertic Ochraqualfs
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Steens	Fine-loamy, siliceous, thermic Aeric Ochraqualfs
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrochrepts
*Sweatman	Clayey, mixed, thermic Typic Hapludults
Tuscumbia	Fine, mixed, nonacid, thermic Vertic Haplaquepts
Vaiden	Very-fine, montmorillonitic, thermic Vertic Hapludalfs

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LEGEND

NEARLY LEVEL AND GENTLY SLOPING SOILS; ON FLOOD PLAINS AND TERRACES

1 Leeper-Catalpa: Somewhat poorly drained and moderately well drained, clayey soils on flood plains

2 Jena-Mantachie: Well drained and somewhat poorly drained, loamy soils on flood plains

3 Cahaba-Prentiss-Guyton: Well drained, moderately well drained, and poorly drained, loamy soils on terraces

NEARLY LEVEL TO SLOPING SOILS; ON TERRACES AND UPLANDS

4 Prentiss-Rosella-Steens: Moderately well drained, poorly drained, and somewhat poorly drained, loamy soils on terraces

5 Savannah-Caledonia-Guyton: Moderately well drained, well drained, and poorly drained, loamy soils on uplands

NEARLY LEVEL TO STEEP SOILS; ON UPLANDS

6 Smithdale-Savannah: Well drained and moderately well drained, loamy soils

7 Smithdale-Sweatman: Well drained, loamy soils

NEARLY LEVEL TO STEEP SOILS OVER CHALK; ON UPLANDS

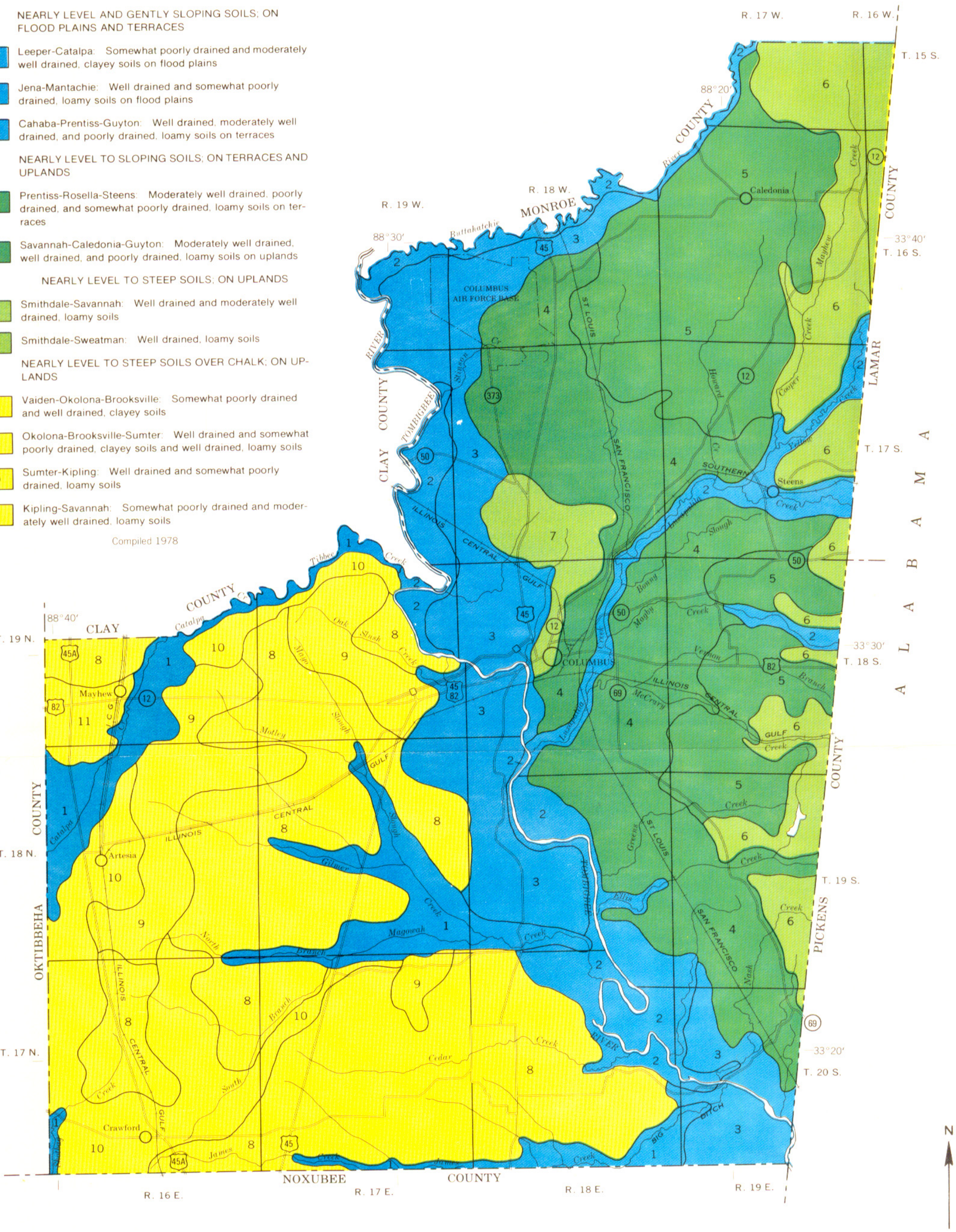
8 Vaiden-Okolona-Brooksville: Somewhat poorly drained and well drained, clayey soils

9 Okolona-Brooksville-Sumter: Well drained and somewhat poorly drained, clayey soils and well drained, loamy soils

10 Sumter-Kipling: Well drained and somewhat poorly drained, loamy soils

11 Kipling-Savannah: Somewhat poorly drained and moderately well drained, loamy soils

Compiled 1978



UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

LOWNDES COUNTY, MISSISSIPPI

Scale 1:190,080

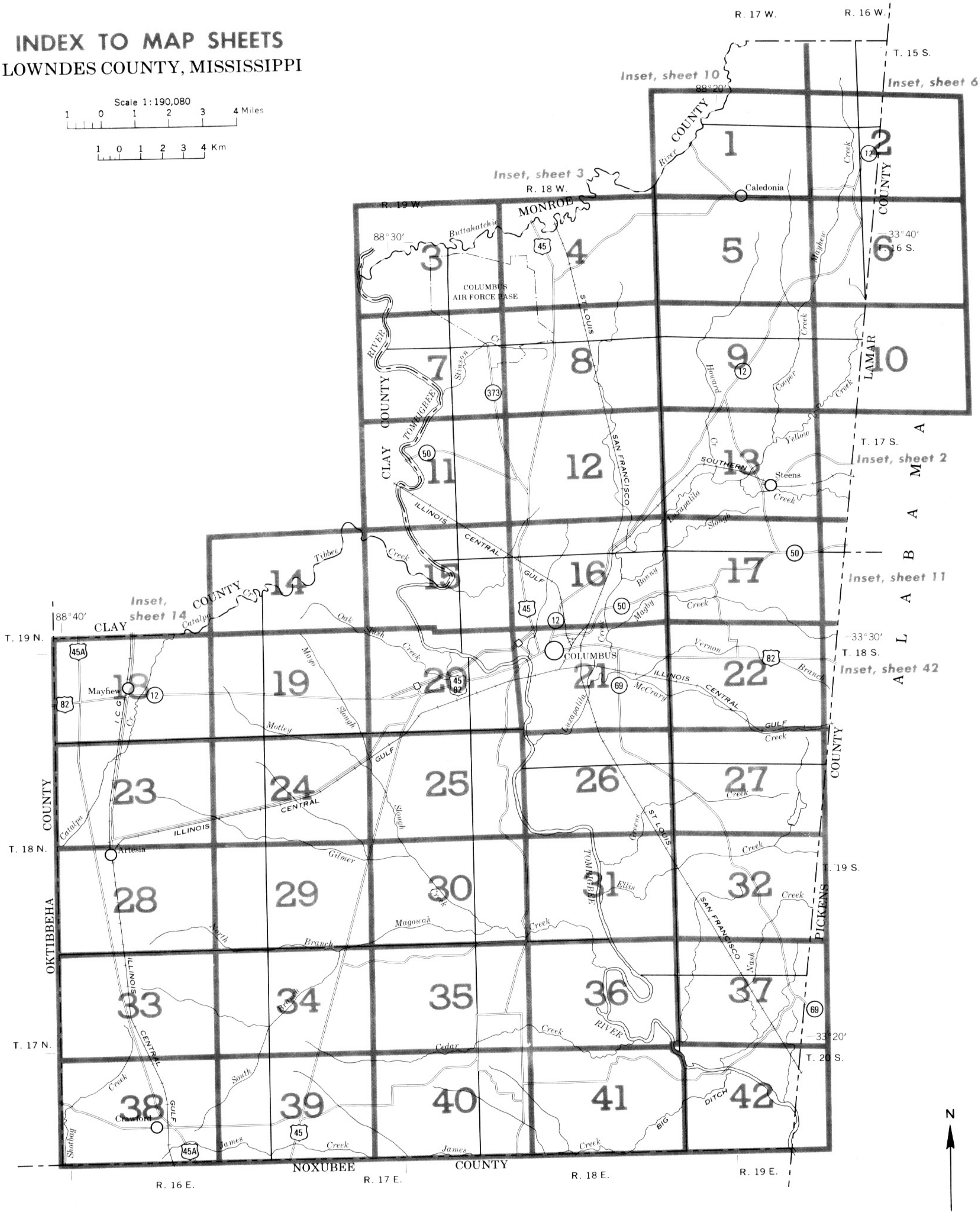
1 0 1 2 3 4 Miles

1 0 1 2 3 4 Km

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

INDEX TO MAP SHEETS

LOWNDES COUNTY, MISSISSIPPI



SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/, otherwise, it is a small letter. The third letter, always a capital, shows the slope. Symbols without slope letters are those of nearly level soils or miscellaneous areas. A final number, such as 2, in the symbol shows the soil is eroded.

SYMBOL	NAME
An	Annemaine loam
BrA	Brooksville silty clay, 0 to 1 percent slopes
BrB	Brooksville silty clay, 1 to 3 percent slopes
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes
CbA	Cahaba fine sandy loam, 0 to 2 percent slopes, occasionally flooded
CbB	Cahaba fine sandy loam, 2 to 5 percent slopes, occasionally flooded
CL	Cahaba-Latonia association, occasionally flooded
CoA	Caledonia silt loam, 0 to 2 percent slopes
CoB	Caledonia silt loam, 2 to 5 percent slopes
CoC2	Caledonia silt loam, 5 to 8 percent slopes, eroded
Cp	Catalpa silty clay
CT	Catalpa-Leeper association
Cu	Columbus silt loam
DeC2	Demopolis-Binnsville complex, 2 to 8 percent slopes, eroded
Gr	Griffith silty clay
Gu	Guyton silt loam
Gy	Guyton silt loam, low terrace
Je	Jena loam
JM	Jena-Mantachie association
Kn	Kinston loam
KpA	Kipling silty clay loam, 0 to 2 percent slopes
KpB2	Kipling silty clay loam, 2 to 5 percent slopes, eroded
KpC2	Kipling silty clay loam, 5 to 8 percent slopes, eroded
La	Latonia loamy sand
Lb	Latonia loamy sand, occasionally flooded
Ld	Latonia-Urban land complex
Le	Leeper silty clay
Ma	Mantachie loam
NJ	Nugent-Jena association
OkA	Okolona silty clay, 0 to 1 percent slopes
OkB	Okolona silty clay, 1 to 3 percent slopes
Pa	Paden silt loam
Ph	Pheba silt loam
PkC2	Pikeville sandy loam, 5 to 8 percent slopes, eroded
PsD2	Pikeville-Smithdale complex, 8 to 12 percent slopes, eroded
Pt	Pits
PuA	Prentiss loam, 0 to 2 percent slopes
PuB	Prentiss loam, 2 to 5 percent slopes
Pw	Prentiss-Urban land complex
Ro	Rosella silt loam
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded
SaA	Savannah silt loam, 0 to 2 percent slopes
SaB	Savannah silt loam, 2 to 5 percent slopes
SaC2	Savannah silt loam, 5 to 8 percent slopes, eroded
Se	Sessum silty clay loam
SmD	Smithdale fine sandy loam, 8 to 12 percent slopes
SmF	Smithdale fine sandy loam, 17 to 35 percent slopes
SnF	Smithdale-Saffell complex, 15 to 35 percent slopes
SR	Smithdale-Saffell association, hilly
SsF	Smithdale-Sweatman complex, 17 to 35 percent slopes
St	Steens fine sandy loam
SuB2	Sumter silty clay loam, 2 to 5 percent slopes, eroded
SuC2	Sumter silty clay loam, 5 to 12 percent slopes, eroded
SvD3	Sumter-Demopolis-Chalk outcrop complex, 5 to 20 percent slopes, severely eroded
Ts	Tuscumbia silty clay
Ur	Urban land
VaA	Vaiden silty clay, 0 to 2 percent slopes
VaB2	Vaiden silty clay, 2 to 5 percent slopes, eroded
VaC2	Vaiden silty clay, 5 to 8 percent slopes, eroded

1/The composition of these units is more variable than that of others in the survey area but has been controlled well enough to be interpreted for the expected use of the soils.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool — Davis Airstrip; FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate — 79
- Federal — 410
- State — 52
- County, farm or ranch — 378

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water; w

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — GAS
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water; w
- Intermittent — int; i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — CeA; FoB2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) — S

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

(1)

N

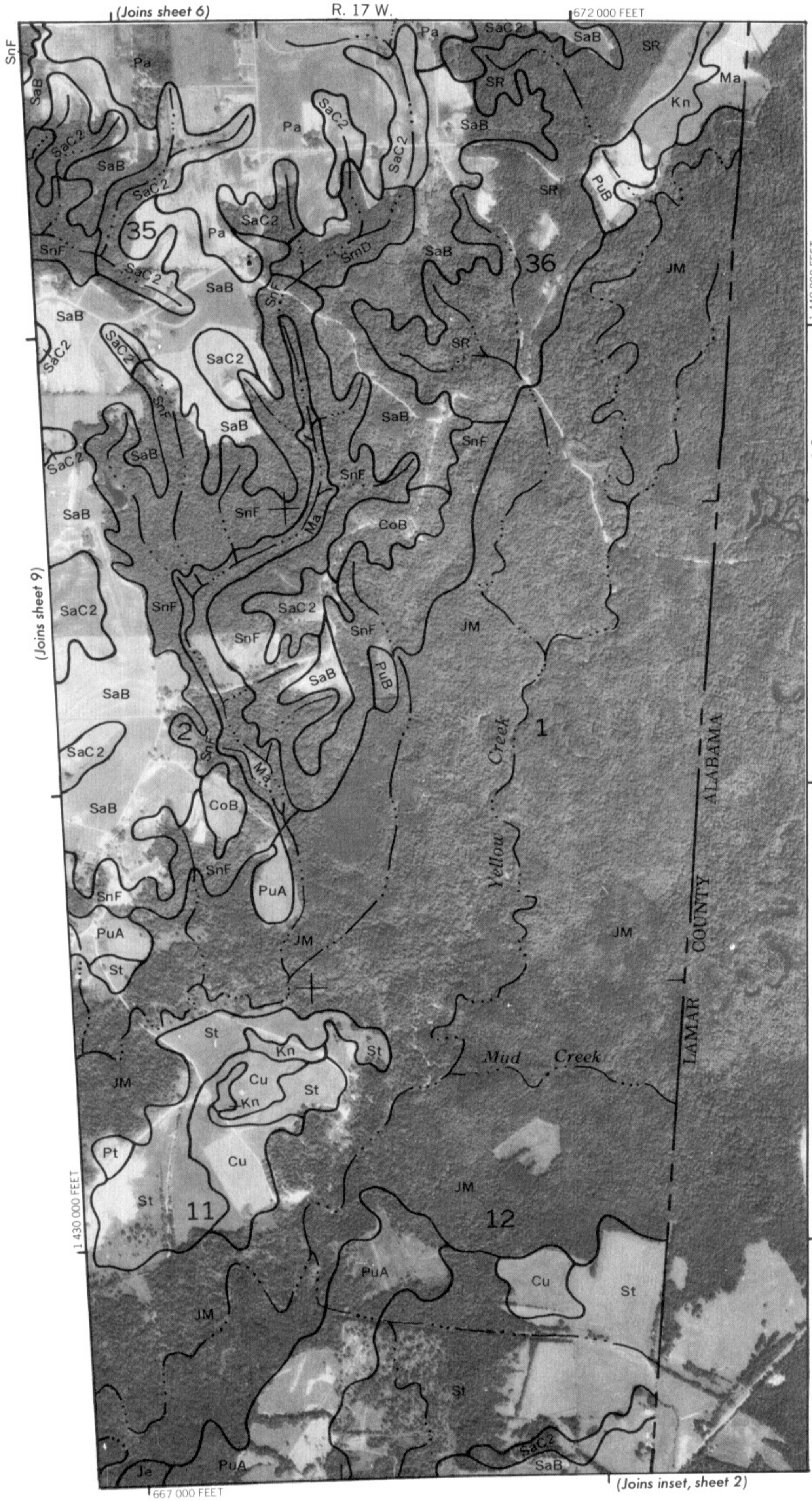
1 Mile
5000 Feet
0 ¼ ½ ¾ 1
0 1000 2000 3000 4000 5000
Scale 1:20000

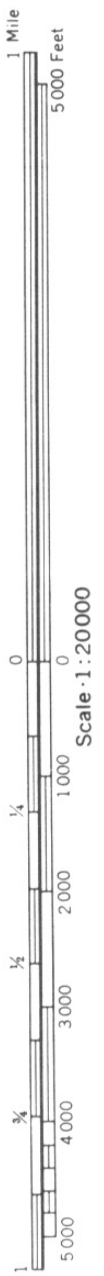
LOWNDES COUNTY, MISSISSIPPI NO. 1

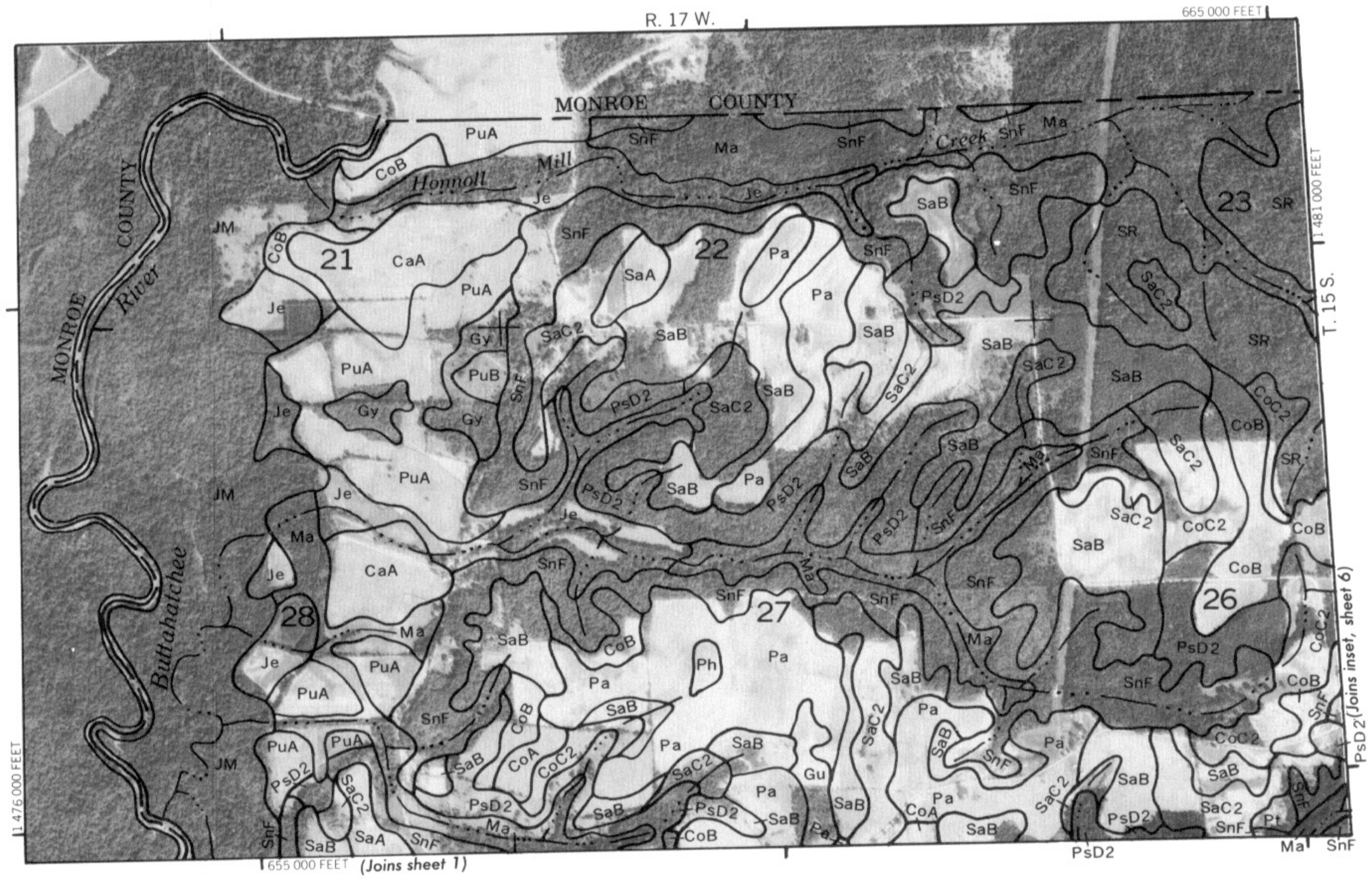
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

10

N







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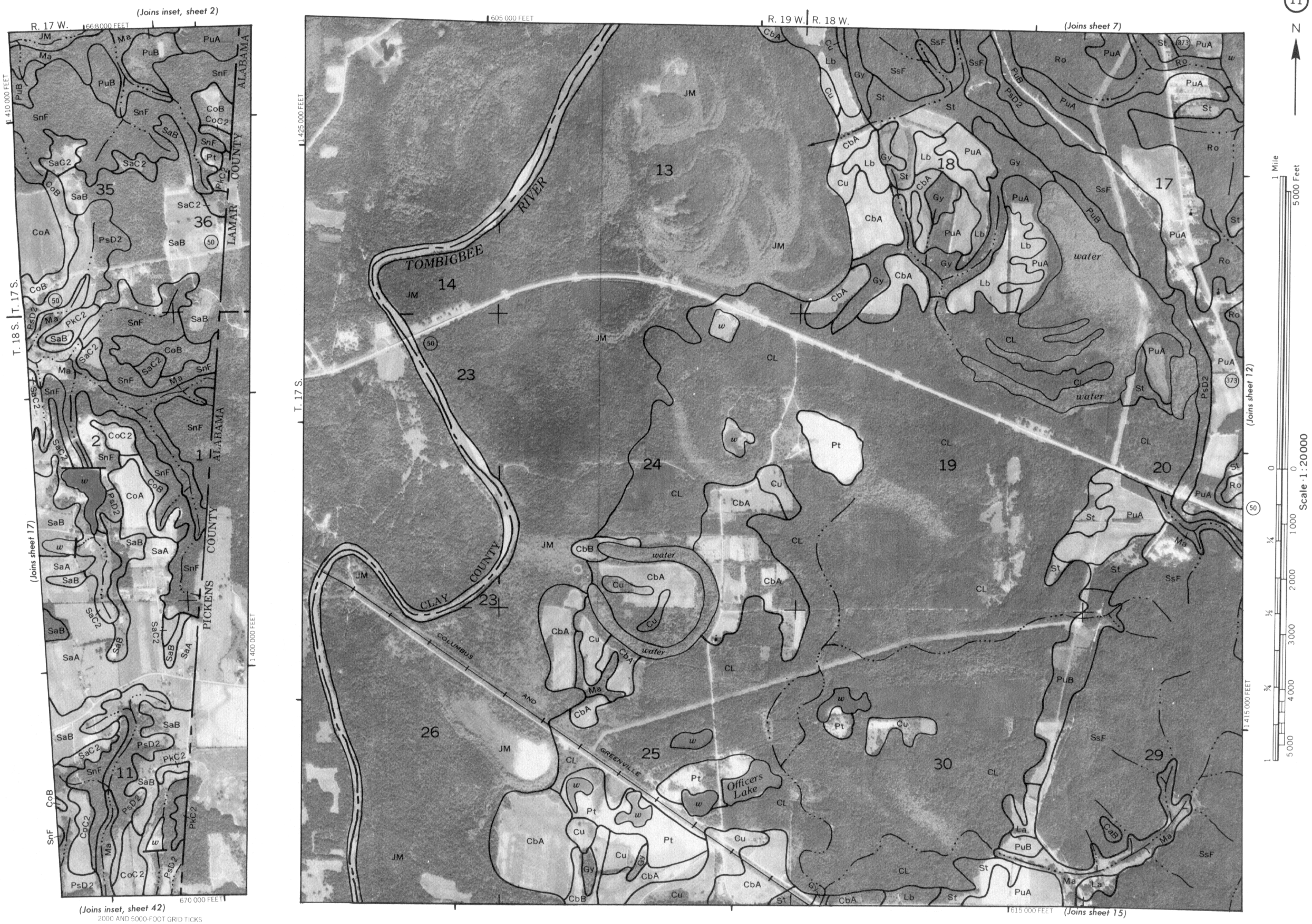

LOWNDES COUNTY, MISSISSIPPI NO. 11

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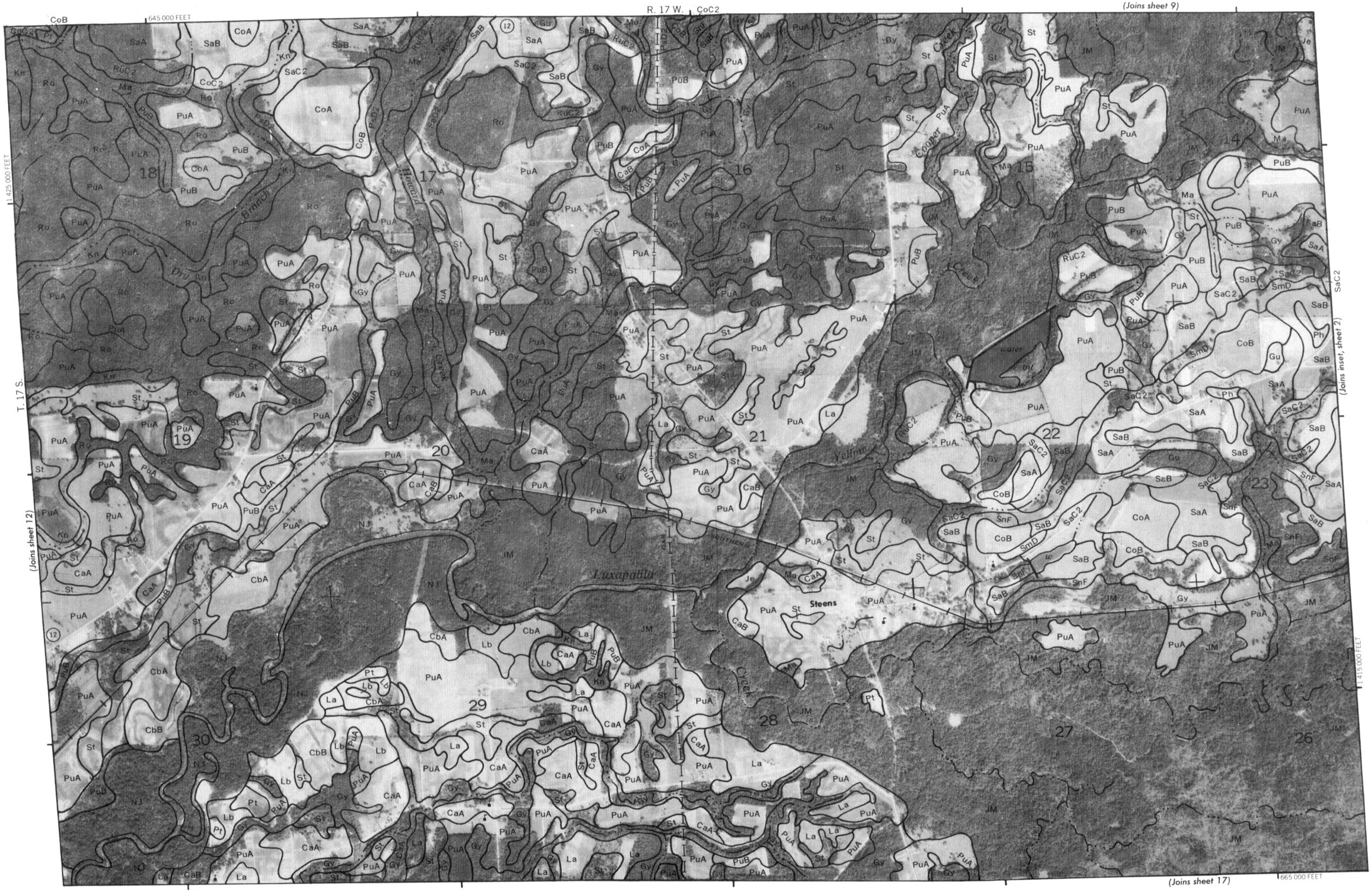
LOWNDES COUNTY, MISSISSIPPI NO. 12

13



N

Scale 1:20000

1 Mile
5000 Feet

LOWNDES COUNTY, MISSISSIPPI NO. 13

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LOWNDES COUNTY, MISSISSIPPI NO. 14

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LOWNDES COUNTY, MISSISSIPPI NO. 15

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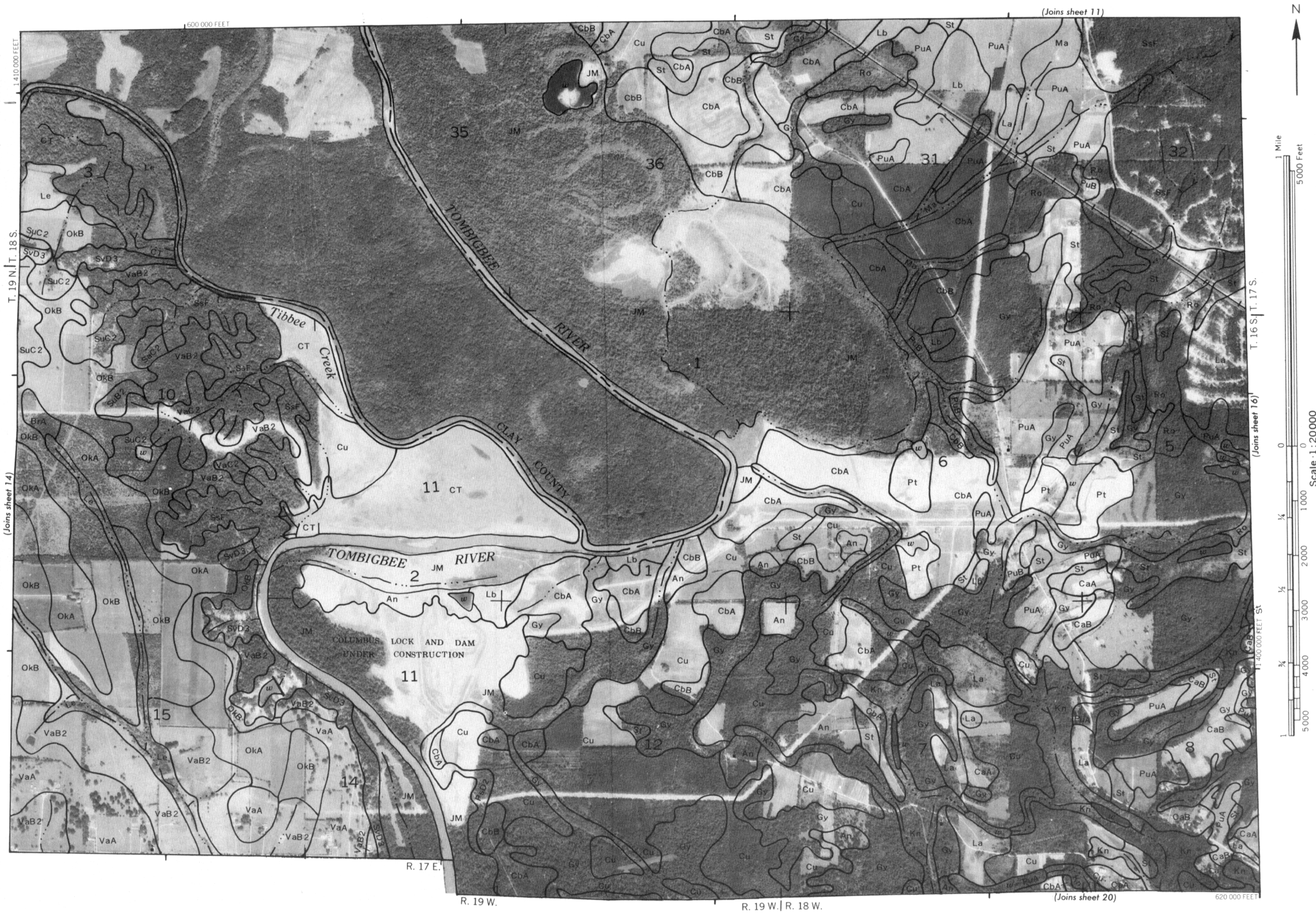

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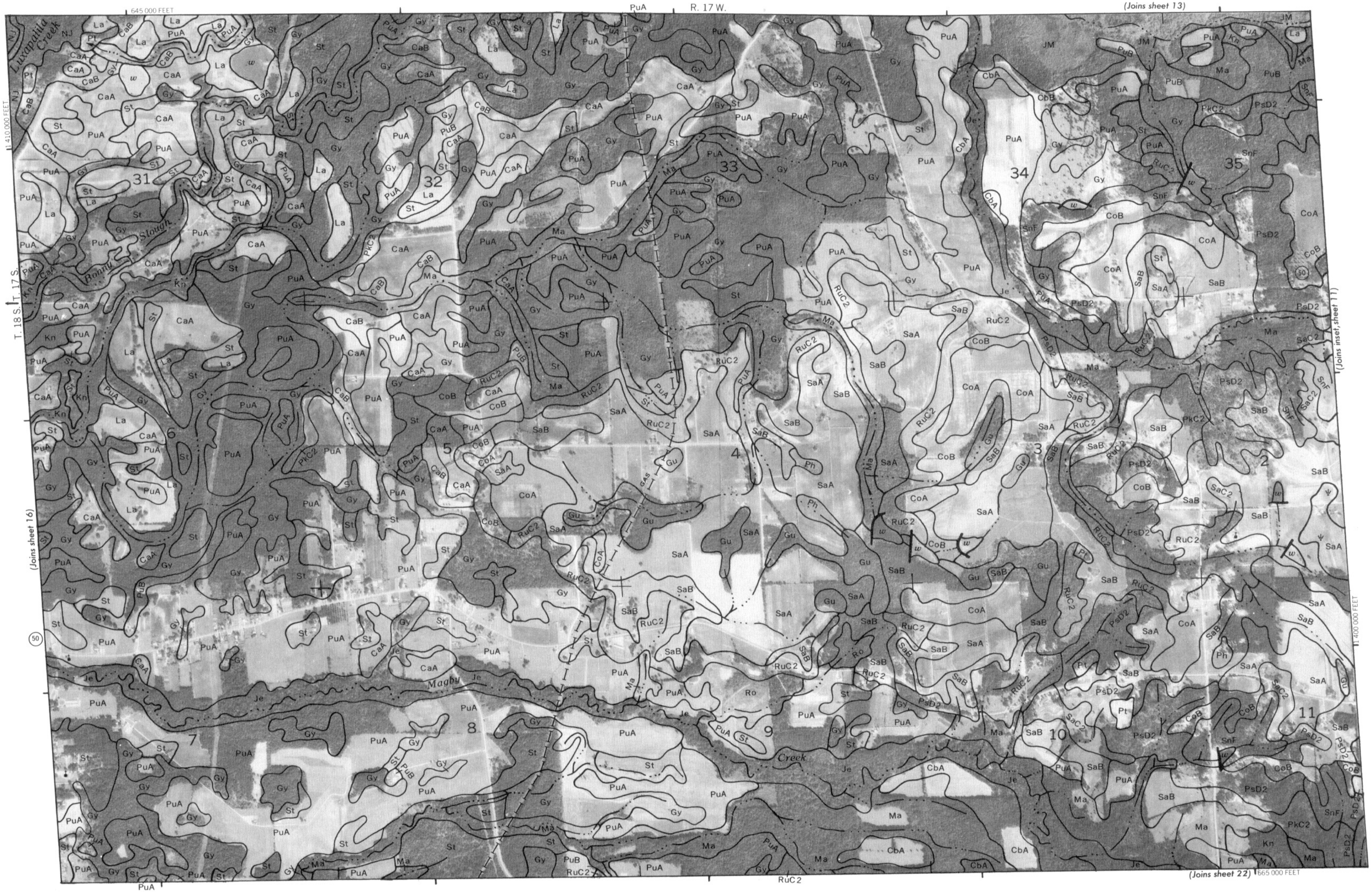
LOWNDES COUNTY, MISSISSIPPI NO. 16

N



Scale 1:20000

1 Mile

5000 Feet

0 ¼ ½ ¾ 1

0 1000 2000 3000 4000 5000

LOWNDES COUNTY, MISSISSIPPI NO. 17

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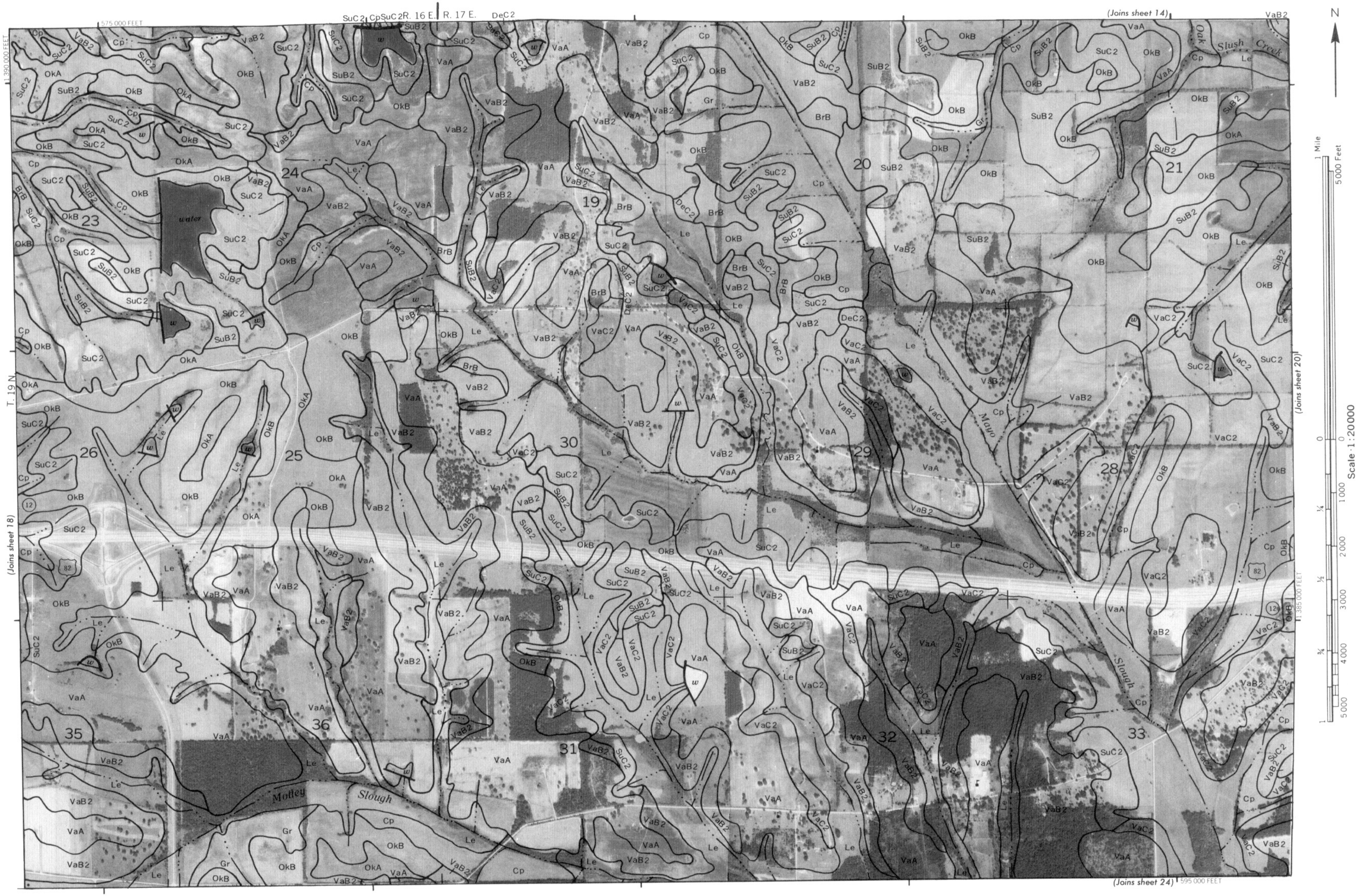
LOWNDES COUNTY, MISSISSIPPI NO. 18



LOWNDES COUNTY, MISSISSIPPI NO. 19

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2

N

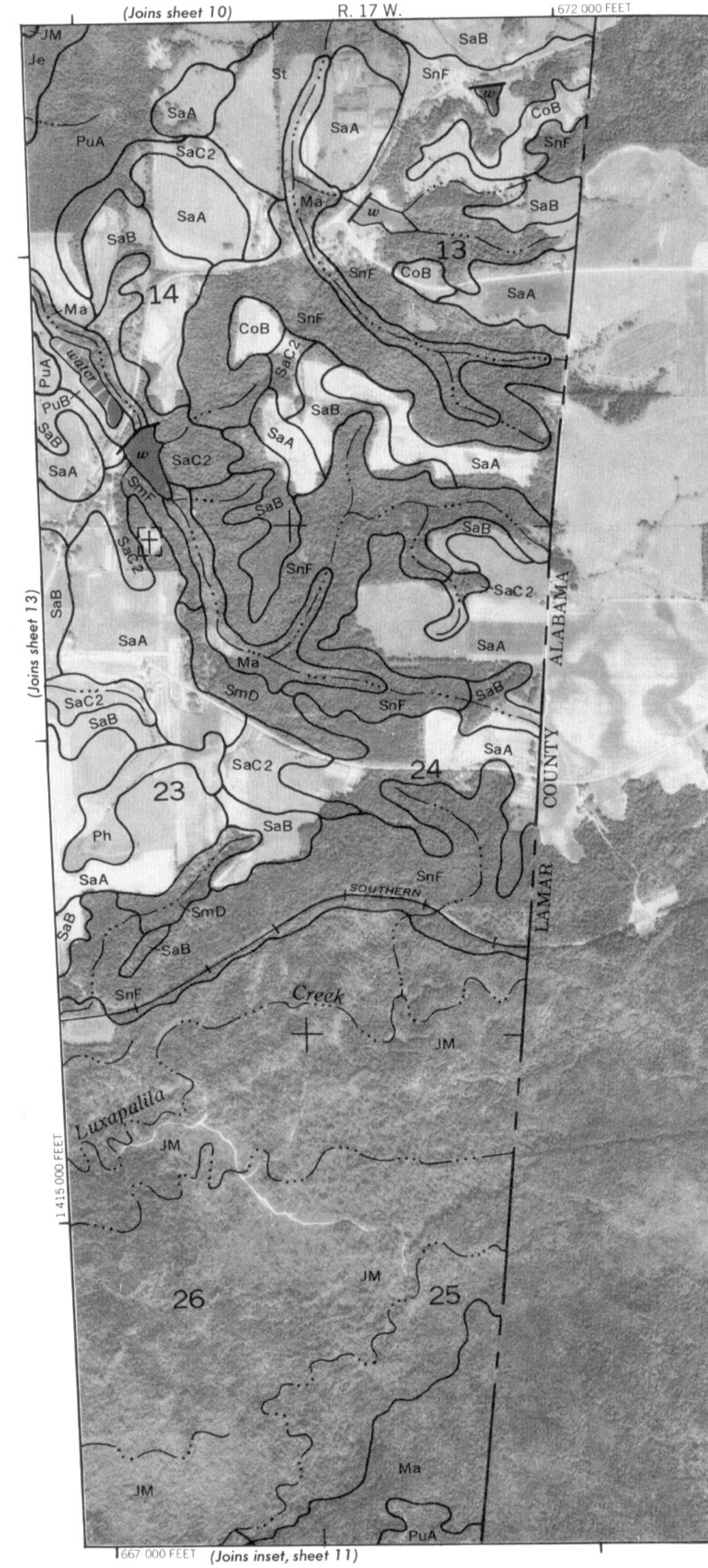
Scale 1:20 000

1 Mile

5000 Feet

0 1000 2000 3000 4000 5000

0 ¼ ½ ¾ 1



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LOWNDES COUNTY, MISSISSIPPI NO. 2

20

N

1 Mile

5000 Feet

Scale 1:20000

0 1000 2000 3000 4000 5000

0 ¼ ½ ¾ 1

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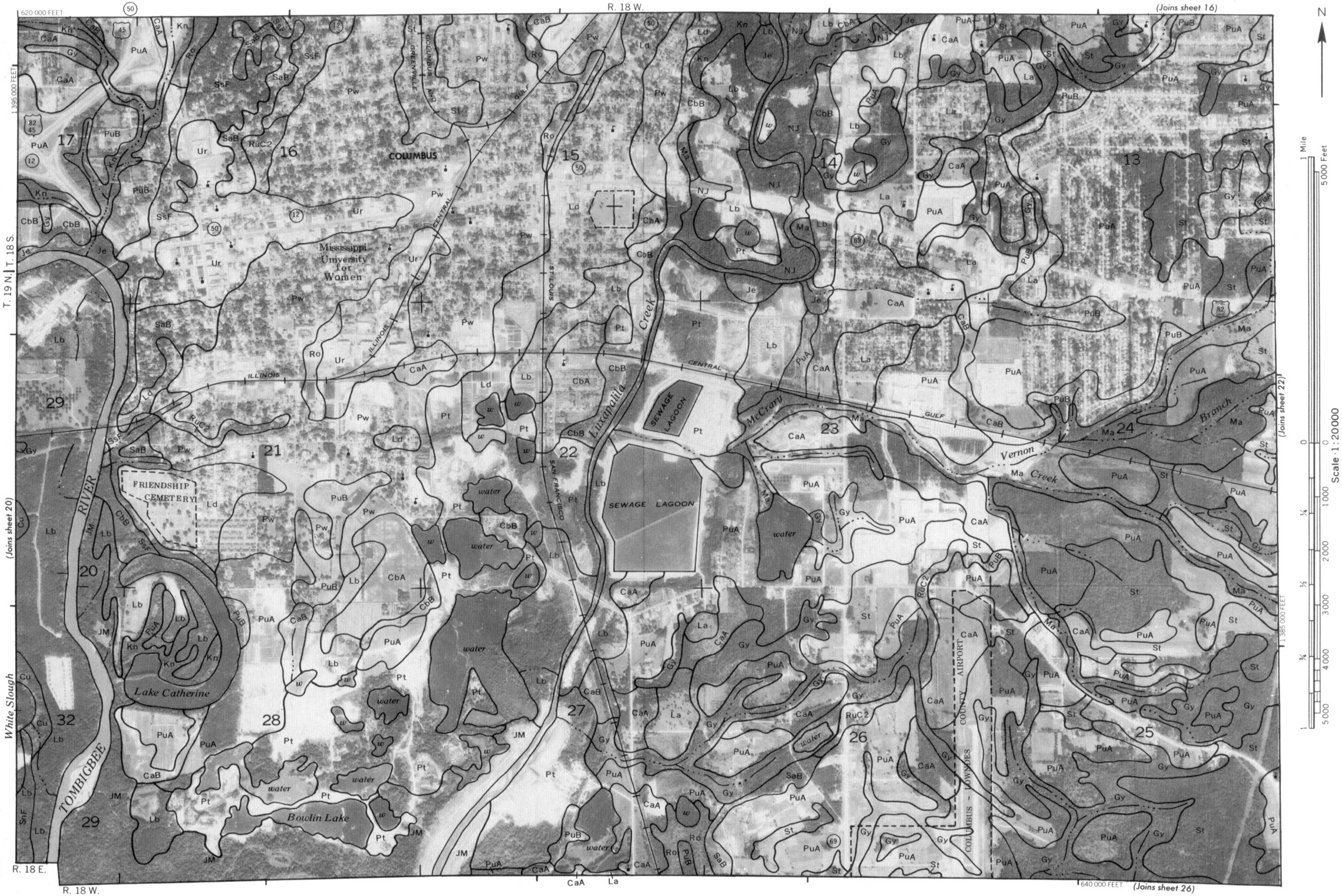
LOWNDES COUNTY, MISSISSIPPI NO. 20



LOWNDES COUNTY, MISSISSIPPI NO. 21

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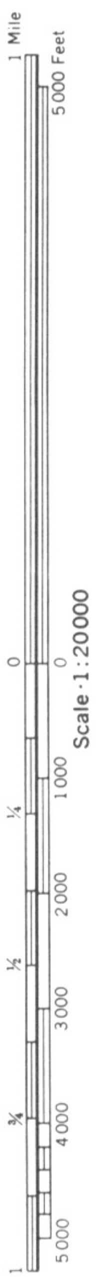
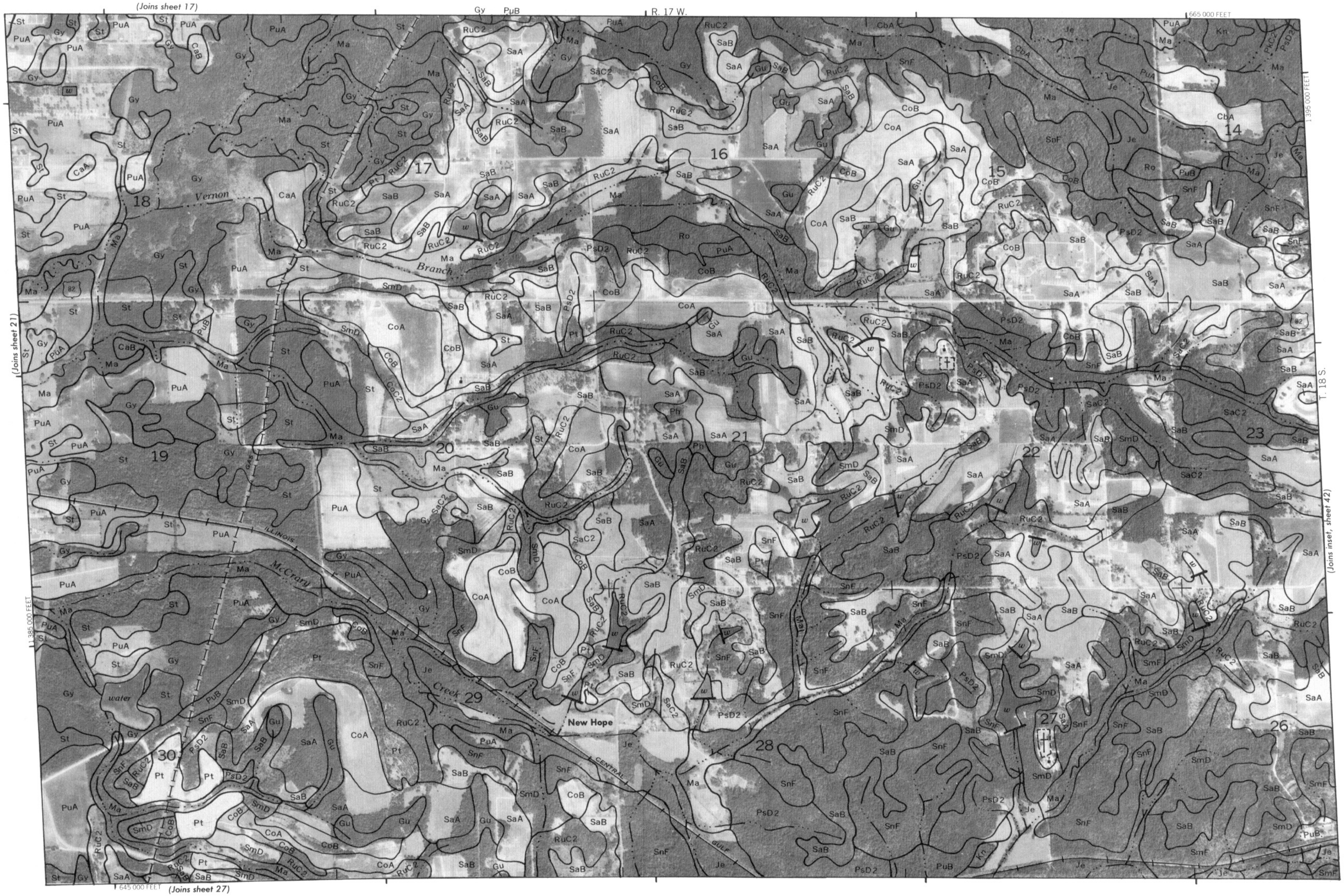
22

N





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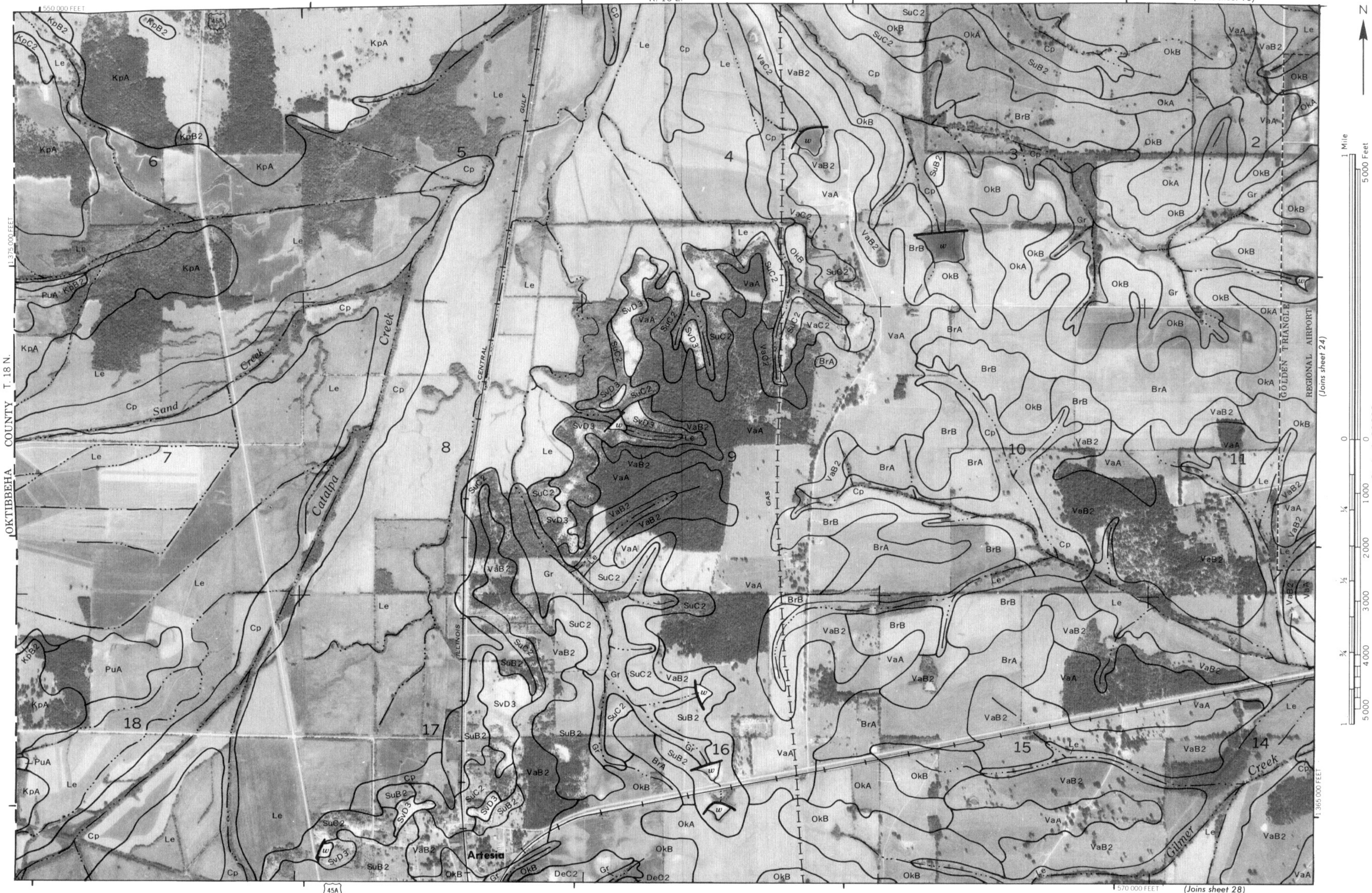

LOWNDES COUNTY, MISSISSIPPI NO. 23

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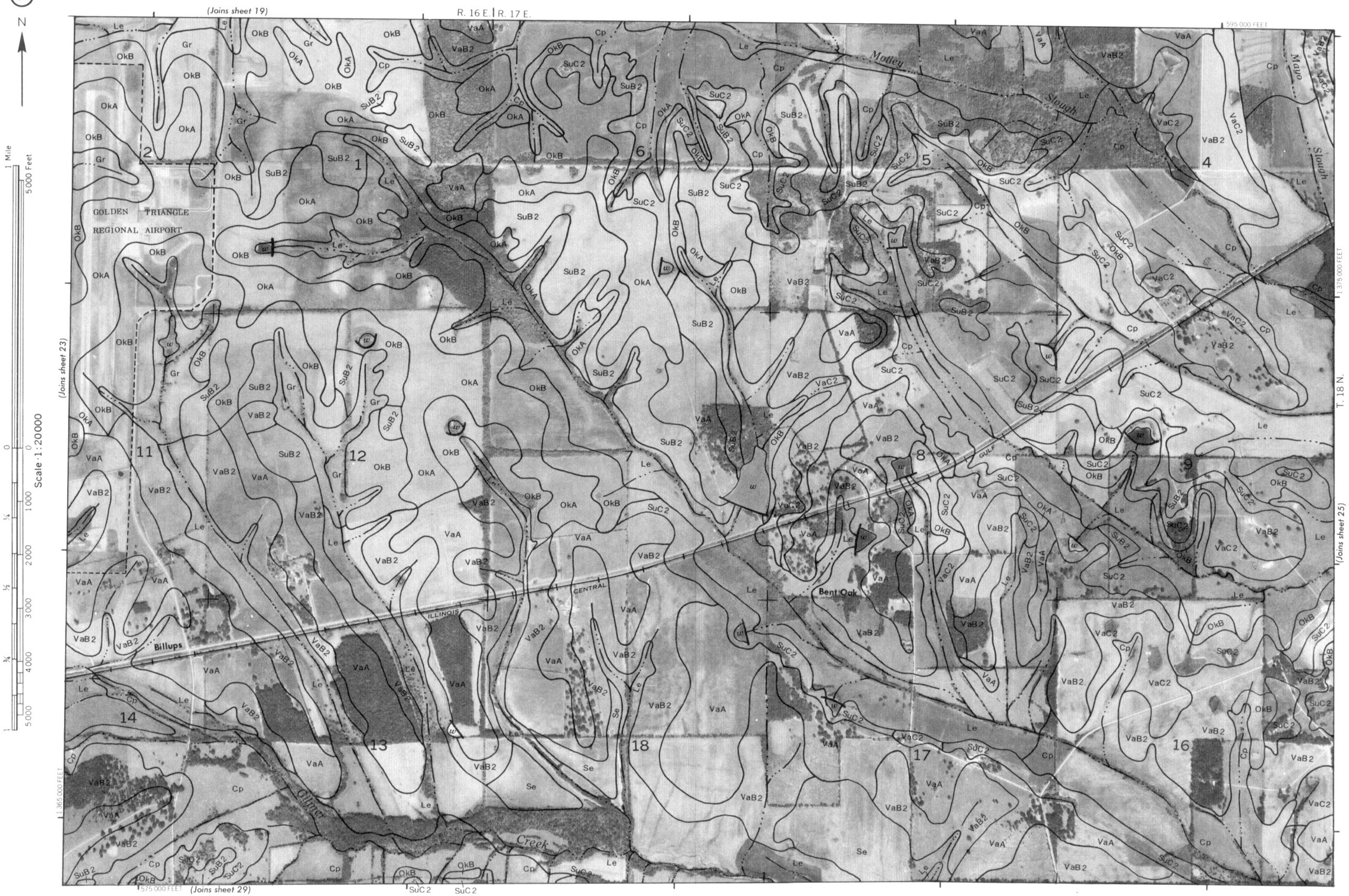

LOWNDES COUNTY, MISSISSIPPI NO. 24

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25

N

Scale 1:20000

1 Mile

5000 Feet

LOWNDES COUNTY, MISSISSIPPI NO. 25

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LOWNDES COUNTY, MISSISSIPPI NO. 26

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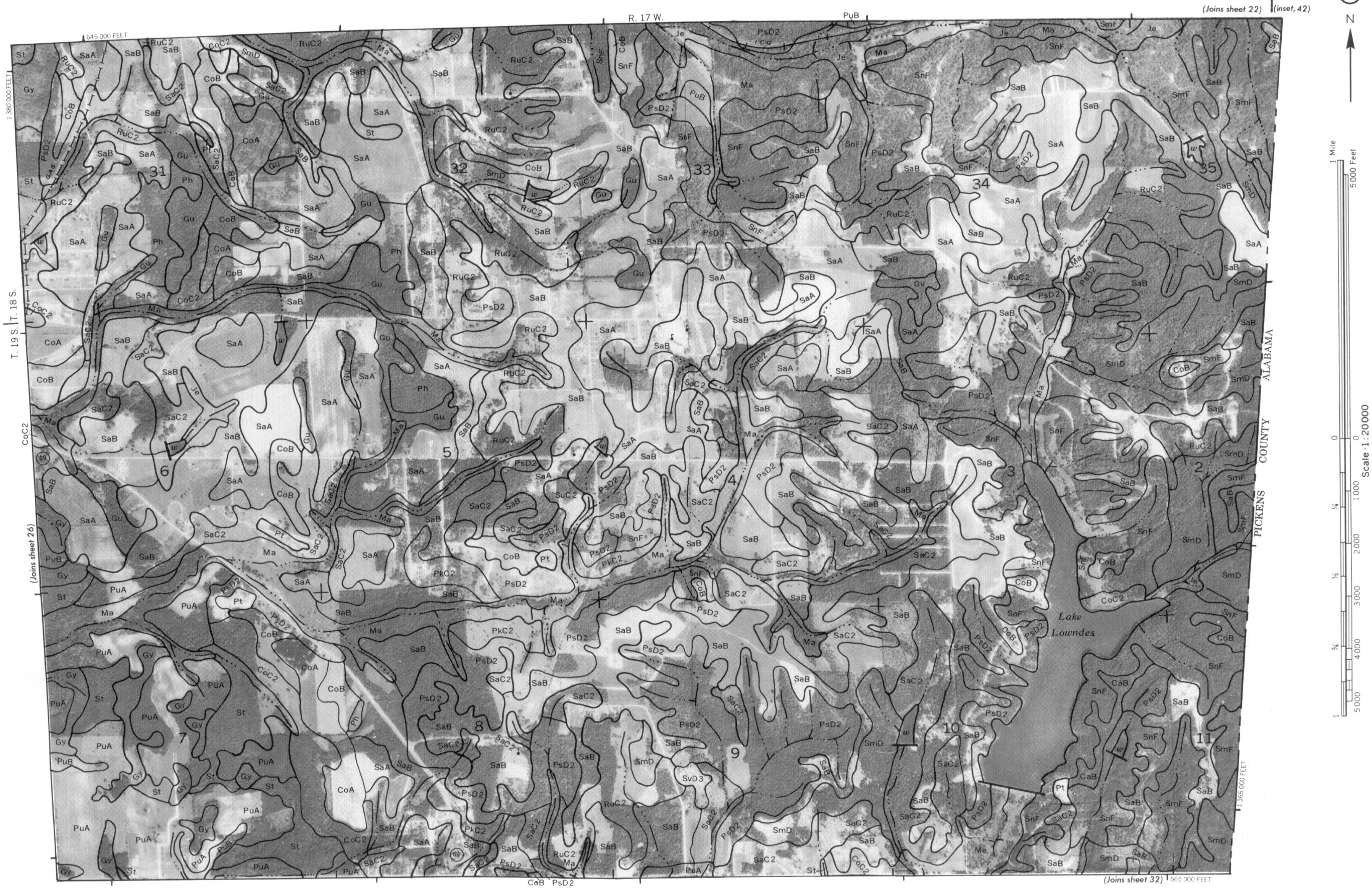

LOWNDES COUNTY, MISSISSIPPI NO. 27

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29

LOWNDES COUNTY, MISSISSIPPI NO. 29

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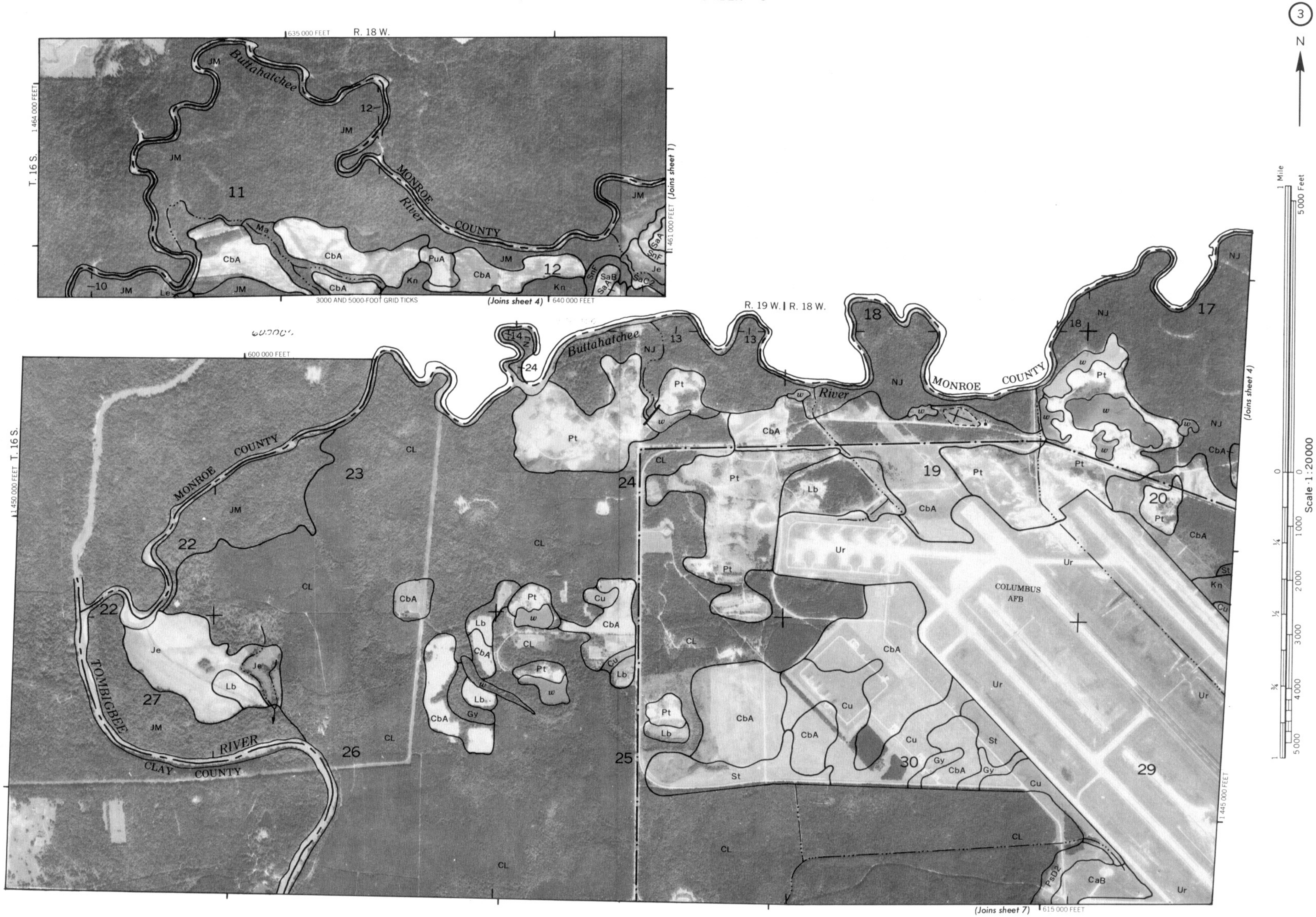

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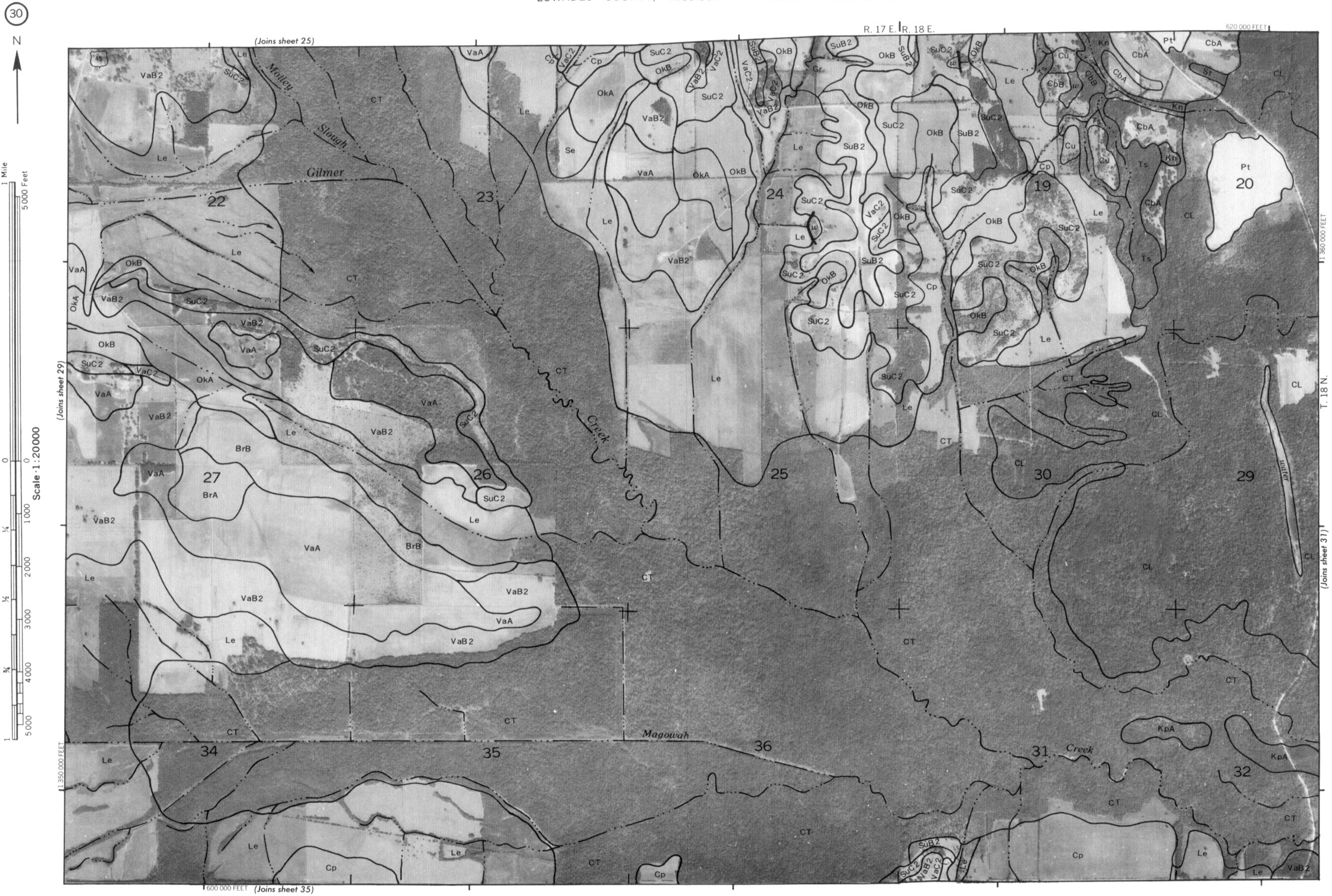

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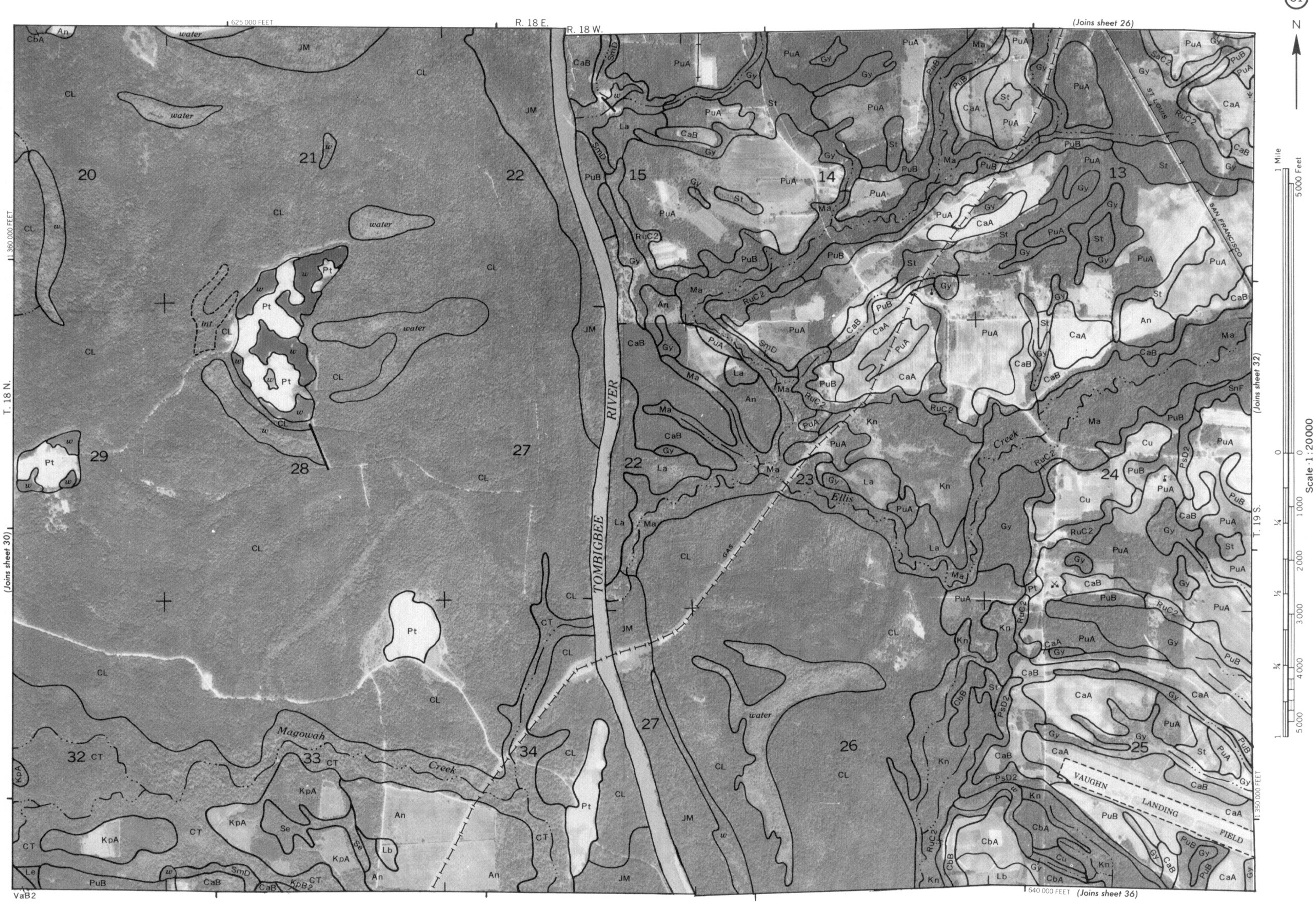
LOWNDES COUNTY, MISSISSIPPI NO. 30

31



LOWNDES COUNTY, MISSISSIPPI NO. 31

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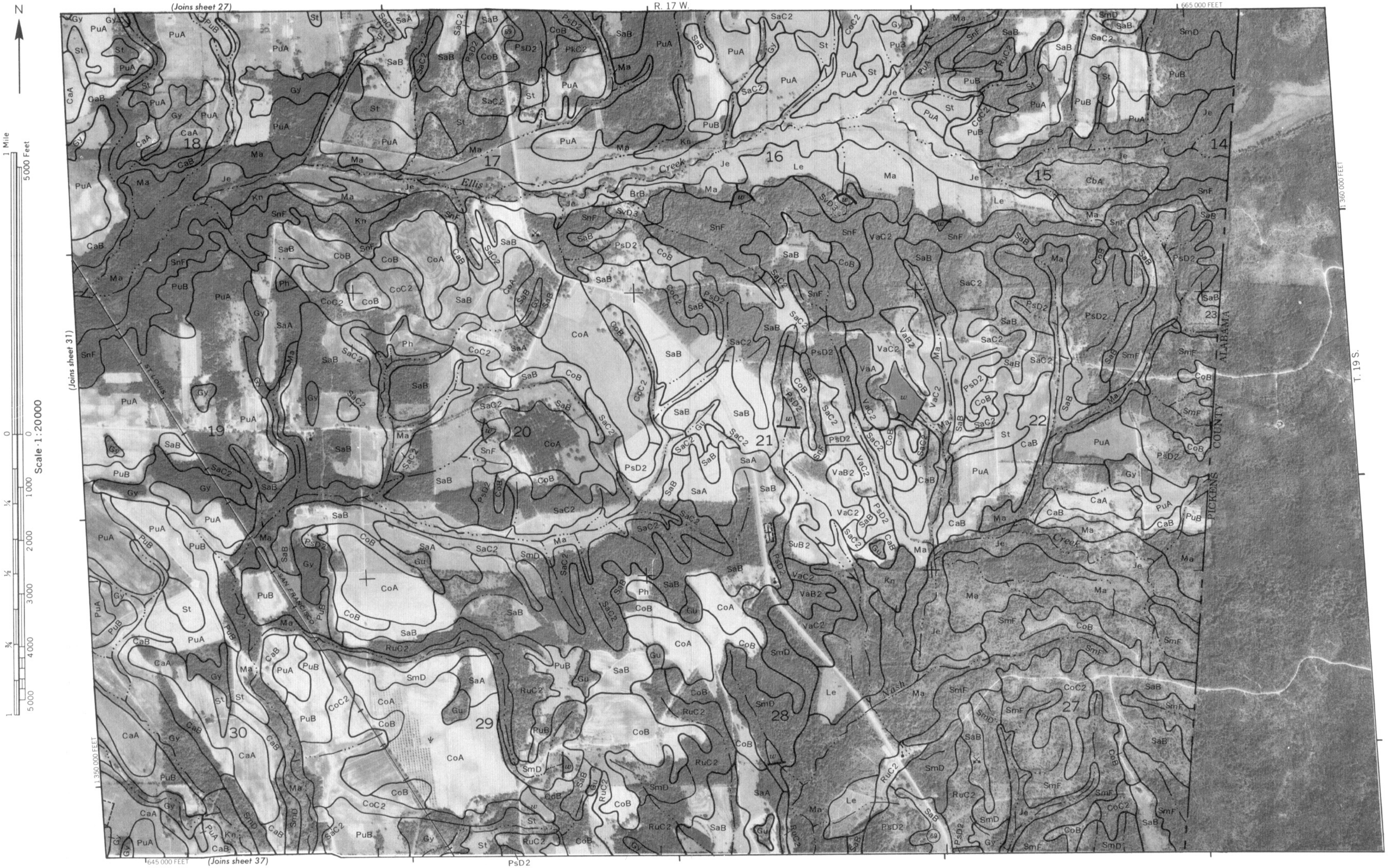
32



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LOWNDES COUNTY, MISSISSIPPI NO. 32

LOWNDES COUNTY, MISSISSIPPI NO. 33

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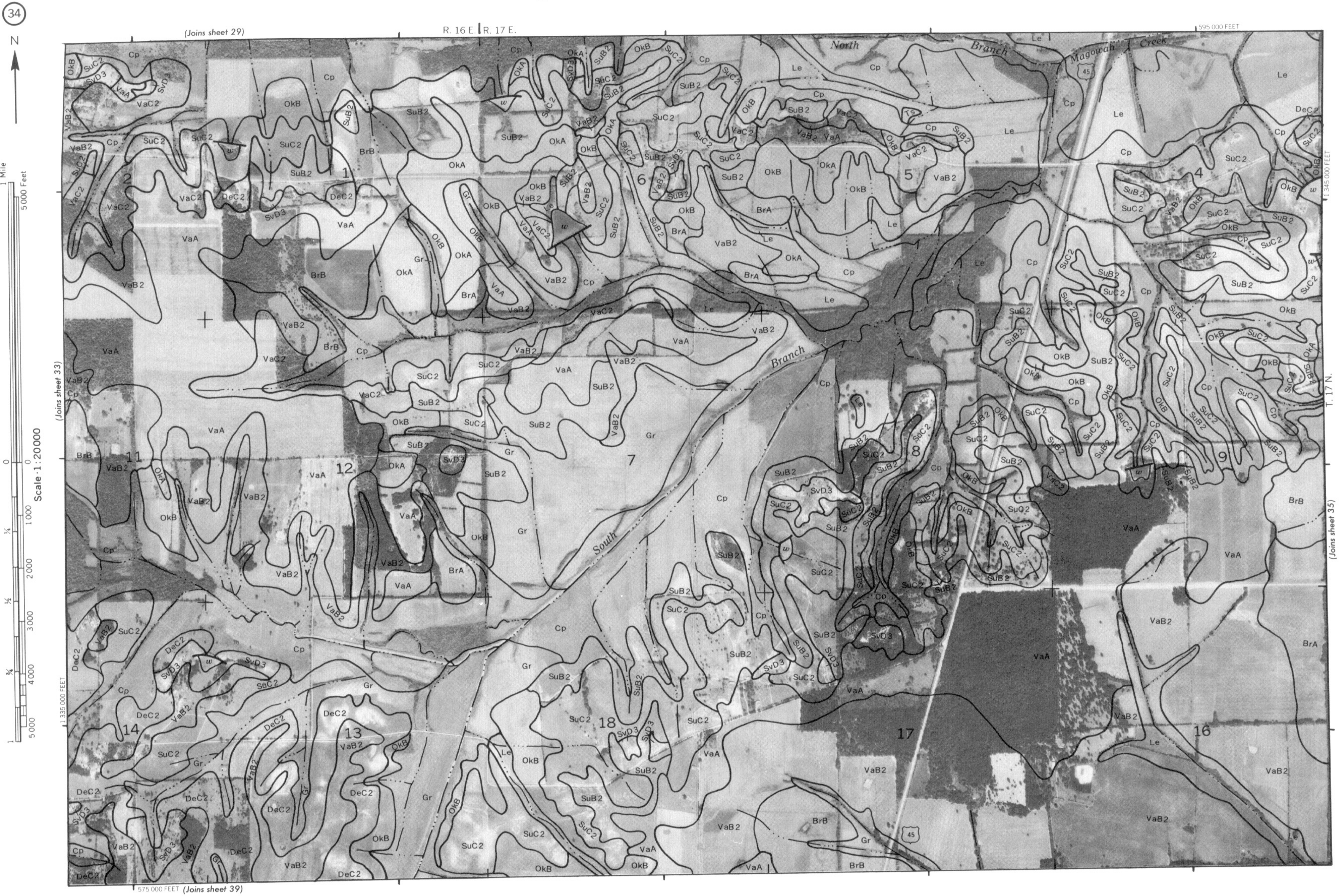

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LOWNDES COUNTY, MISSISSIPPI NO. 34

LOWNDES COUNTY, MISSISSIPPI NO. 35

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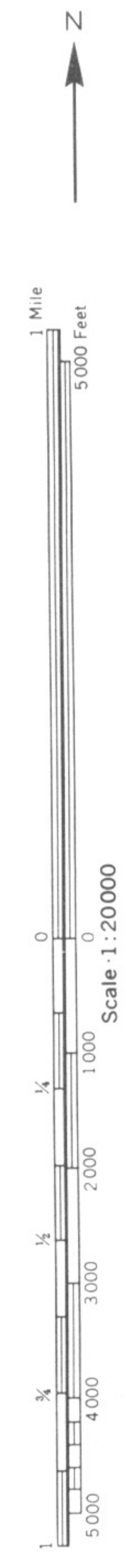
LOWNDES COUNTY, MISSISSIPPI NO. 36

37



LOWNDES COUNTY, MISSISSIPPI NO. 37

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38

N

1 Mile
5000 Feet
Scale 1:20000
0 1000 2000 3000 4000 5000
0 ¼ ½ ¾ 1

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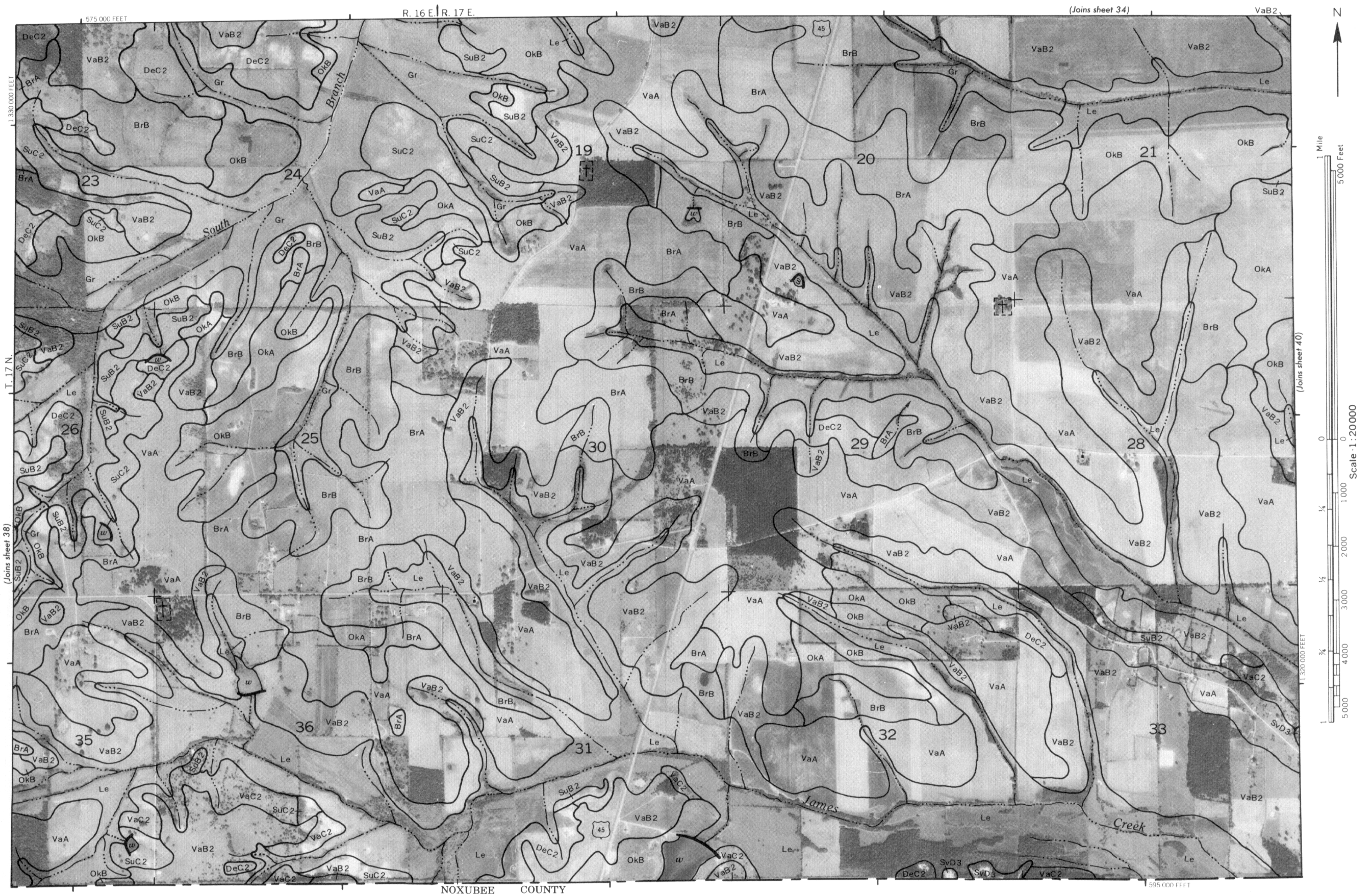
LOWNDES COUNTY, MISSISSIPPI NO. 38



LOWNDES COUNTY, MISSISSIPPI NO. 39

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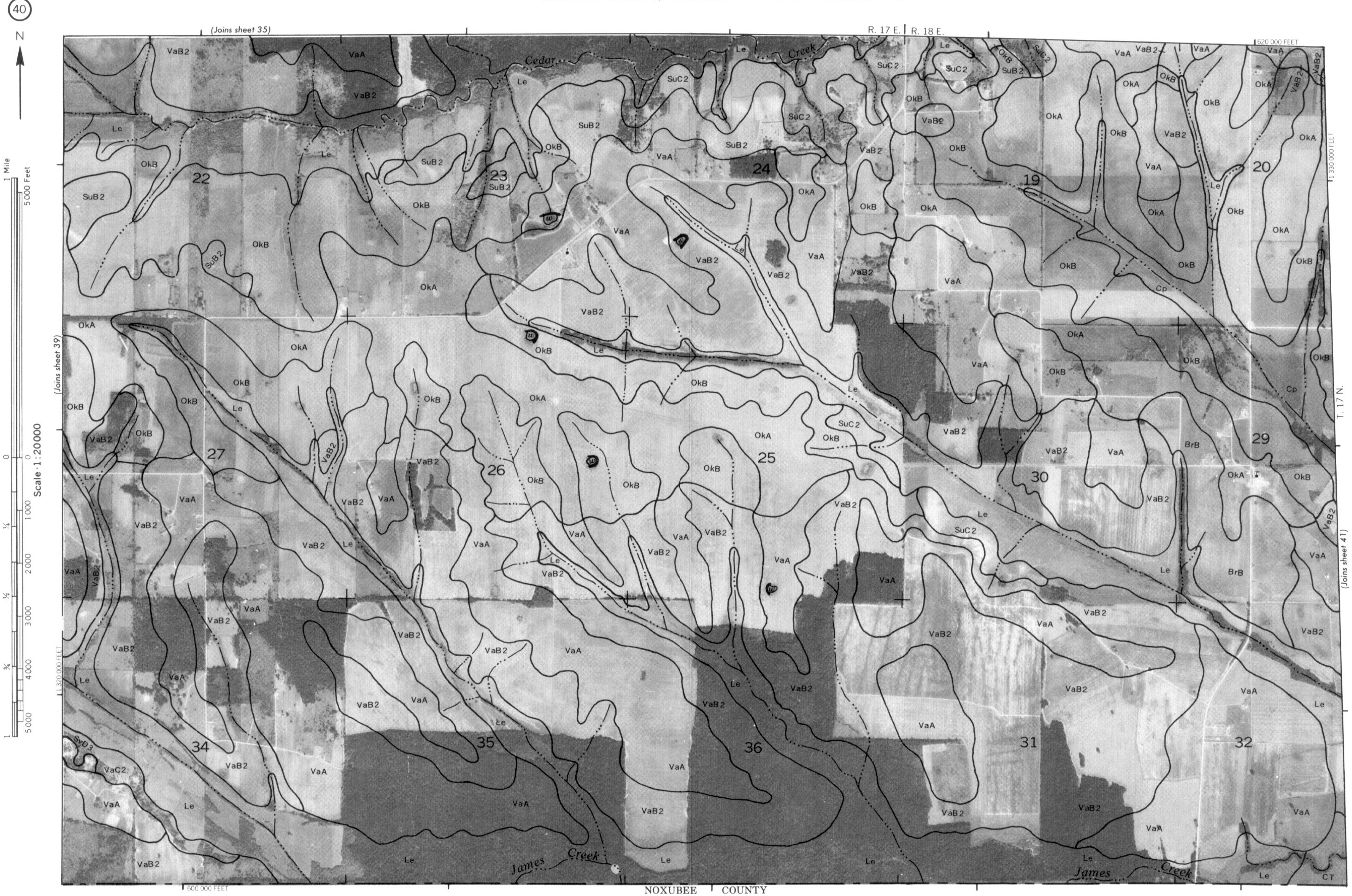

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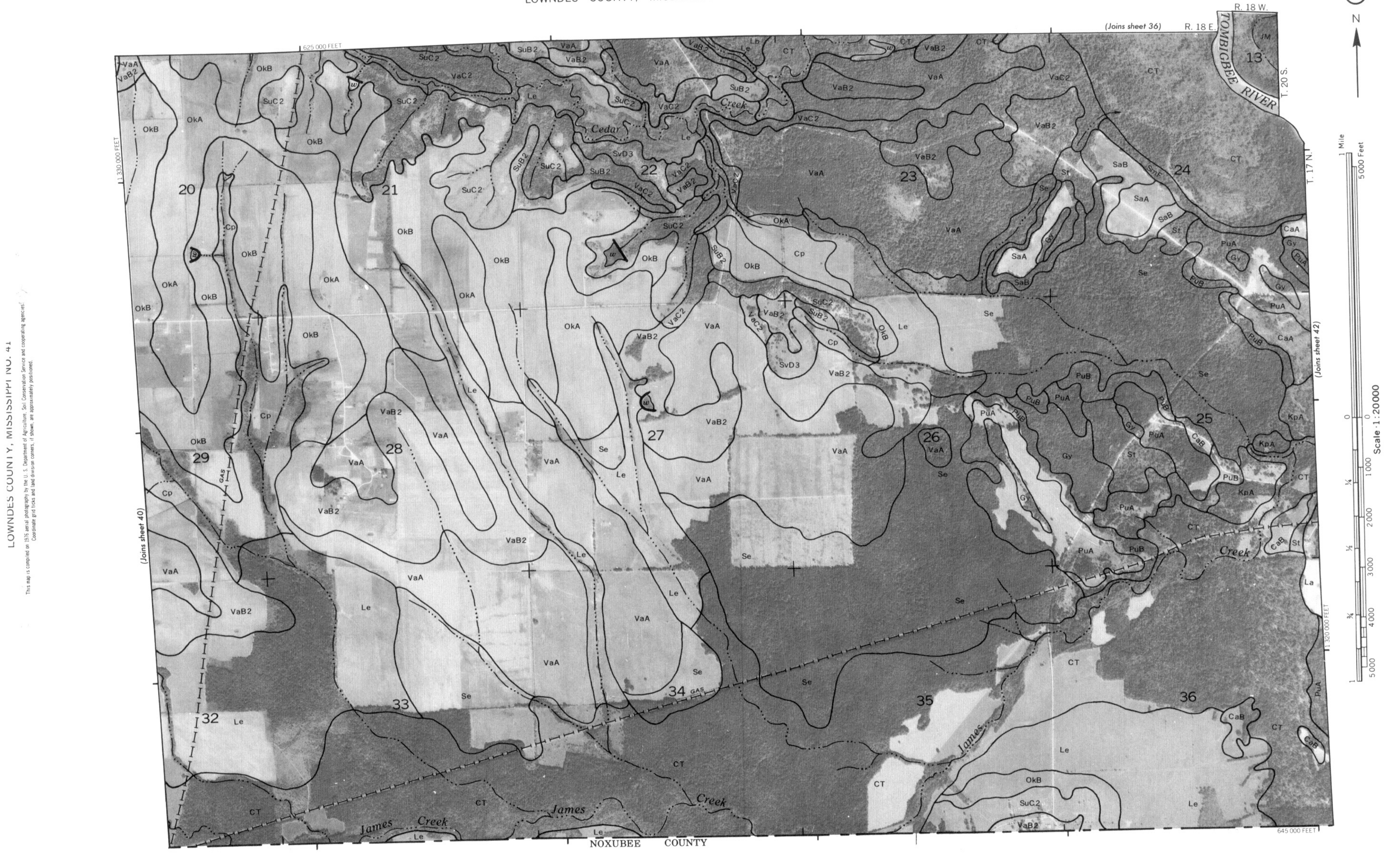
LOWNDES COUNTY, MISSISSIPPI NO. 40


41
N
(Joins sheet 36)
R. 18 W.
R. 18 E.
T. 20 S.
T. 17 N.
TOMBIGBEE RIVER
(Joins sheet 42)
(Joins sheet 40)
625 000 FEET
645 000 FEET
1 330 000 FEET
1 320 000 FEET
Cedar Creek
James Creek
Creek
NOXUBEE COUNTY
GAS
Scale 1:20000
1 Mile
5000 Feet
LOWNDES COUNTY, MISSISSIPPI NO. 41
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1000 AND 5000-FOOT GRID TICKS

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LOWNDES COUNTY, MISSISSIPPI NO. 42

5

LOWNDES COUNTY, MISSISSIPPI NO. 5

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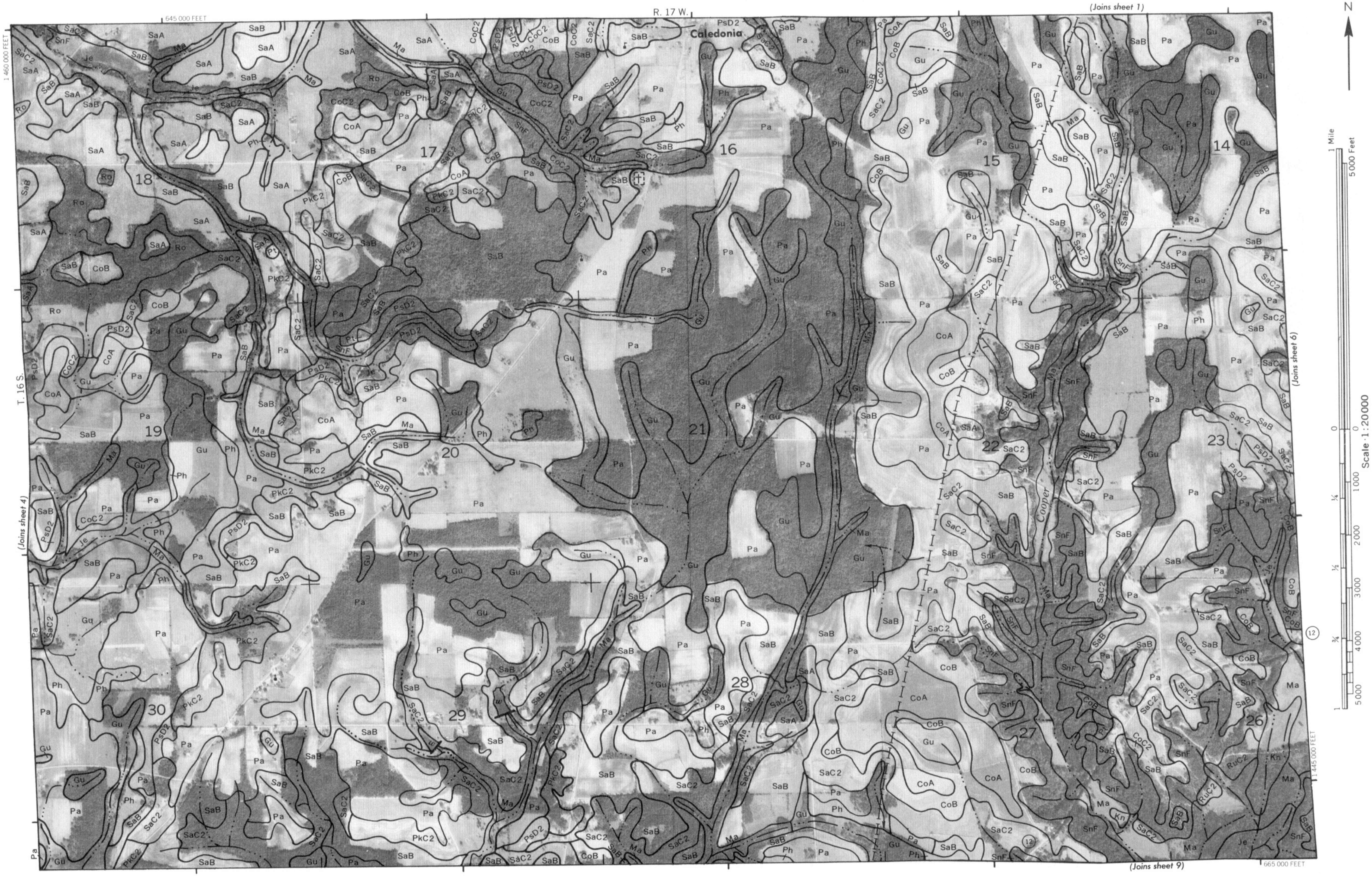


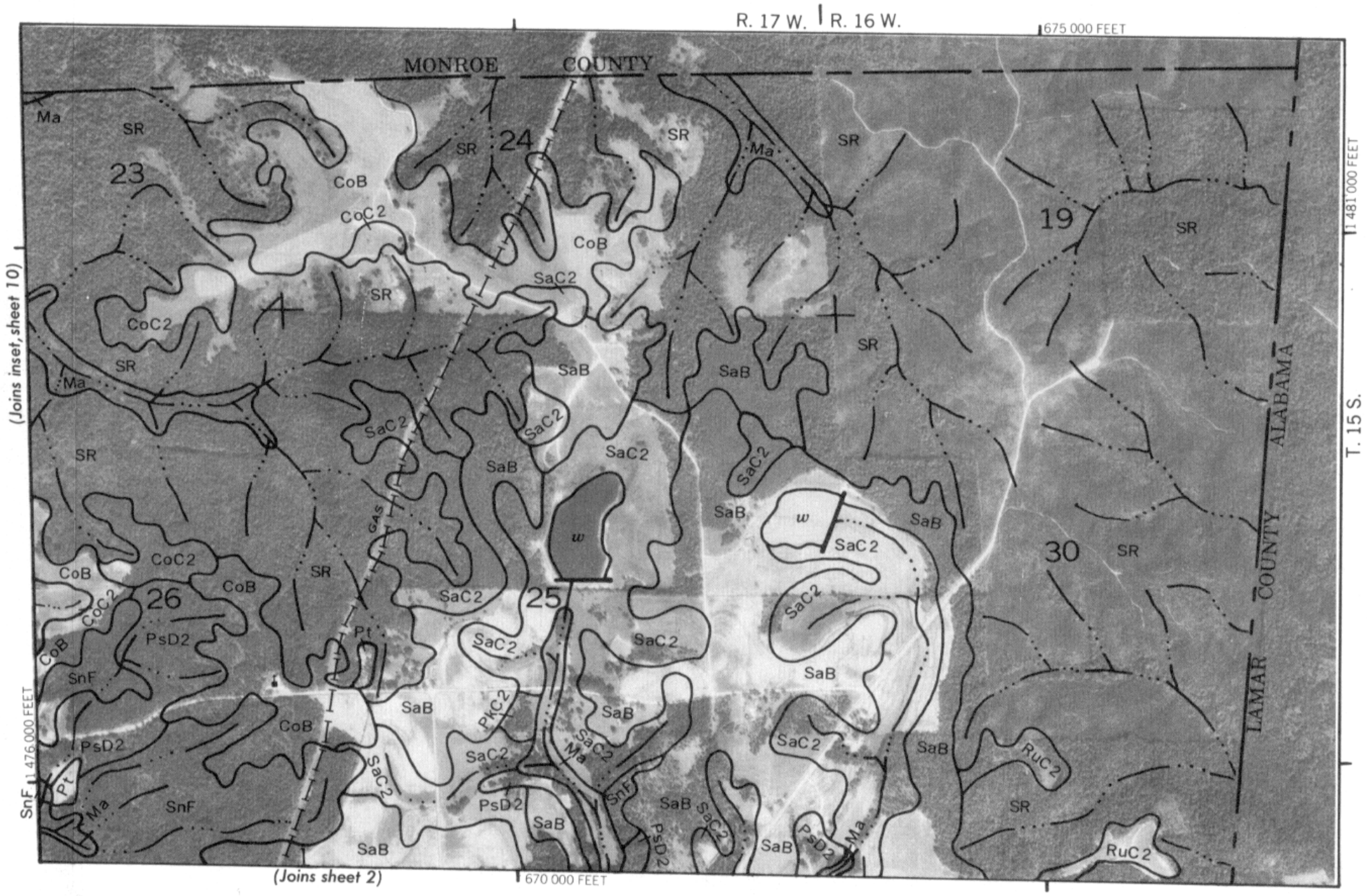
6

N

Scale 1:20 000

1 Mile | ¾ | ½ | ¼ | 0

5000 Feet | 4000 | 3000 | 2000 | 1000 | 0 | 5000



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.


7
N
(Joins sheet 3)
R. 19 W. | R. 18 W.
600 000 FEET
1 440 000 FEET
T. 17 S. | T. 16 S.
COLUMBUS AFB
TOMBIGBEE RIVER
CLAY COUNTY
Stinson Creek
(Joins sheet 8)
(Joins sheet 11)
615 000 FEET
1 430 000 FEET
Scale 1:20000
1 Mile
5 000 Feet
LOWNDES COUNTY, MISSISSIPPI NO. 7
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
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LOWNDES COUNTY, MISSISSIPPI NO. 8

LOWNDES COUNTY, MISSISSIPPI — SHEET NUMBER 9

LOWNDES COUNTY, MISSISSIPPI NO. 9

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